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JEL Classification: F21, F32, F43, N13, N73

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Spain's financial position during the late 19th and early 20th century has been frequently described as one of persistent deficit on current account. It is also widely accepted that this situation was a result of her integration into international commodity and factor markets that contributed, in turn, to slowing down Spanish economic growth and deepening the country's backwardness. Such a depiction is not grounded in sound quantitative evidence, but provides a set of challenging hypotheses for research and testing. In this essay a preliminary reconstruction of the balance of payments on current account allows the rejection of the pessimistic view that Spain's international integration hindered growth. On the contrary, the sustained deficit on current account over 1850-90 highlights the fact that net inflows of foreign capital made possible to meet the demand for domestic investment and, thus, boosted Spanish economic performance, while current account reversals help to explain the economic slowdown at the turn of the century. The paper is organized as follows: Section 1 presents current assessments of Spain's international position. Section 2 describes briefly the sources and procedures employed in the reconstruction of the balance of payments on current account. Section 3 examines its main trends and determinants from a "sudden stop" perspective.[2] In Section 4 the implications for growth of Spain's financial position are discussed. Section 5 concludes.

Assessments of Spain's international position

For most historians Spain's position in the international economy during the nineteenth and early twentieth century is characterized by a chronic deficit on current account.[3] This diagnosis stems from the official trade figures (*Estadística del comercio exterior*) which show a sustained negative commodity trade balance, and from the scattered evidence about the gross inflow of foreign capital into Spain.[4]

[2] A "sudden stop" can be defined as an unexpected and significant reduction in a country's net capital inflow.

[3] Among the most recent references to the recurrent external deficit, cf. Tortella (1994), Herranz-Loncán and Tirado (1996), Serrano Sanz (1997), Gutiérrez, Herranz-Loncán and Tirado (1998), and Cubel, Palafox and Sudriá (1998).

[4] Since Sardá's classical study (1948), the only estimate of the total volume of foreign capital invested in Spain during the nineteenth century is that of Broder (1976). Foreign investment in railways and mining have been estimated by Tedde (1978) and Harvey and Taylor (1987) respectively. Stone (1999) has published figures for British portfolio investment in Spain between 1865 and 1914.

Spain's trade balance experienced, according to Juan Sardá (1948: 277), a sustained deficit for long periods, while Gabriel Tortella (1974a: 122) stressed that the trade balance was negative through the late nineteenth century. The persistent deficit represented, in Jaime Vicens Vives's view (1959: 631), a heavy burden which contributed to the economic failure of the Restoration (1876-1923).

The view that a chronic trade balance deficit hindered economic growth still prevails in Spain's historical literature. Supposedly the current account deficit would have set a limit on the growth of demand to which supply had to adjust, leading to slower growth.[5] The acceptance of an external constraint on growth caused by a structural balance of payments deficit has major economic policy implications as it would require protective measures in order to limit imports and a floating exchange rate. Alfonso Herranz-Loncán and Daniel Tirado (1996: 24) observed that the values of income elasticities for imports and exports suggest the existence of a constraint on Spain's economic growth resulting from the trade balance.[6] José María Serrano Sanz (1997) estimated the theoretical growth rate for the Spanish economy which was compatible with the current account equilibrium.[7] As long as the theoretical rate is above the actual one, there is no problem. This would have been the case of Spain over 1869-1891. However, if it is below, as it would have happened during 1892-1935, the

[5] In the "external constraint to growth" argument proposed by Thirlwall (1979), under the assumptions of international stability of relative prices and the absence of capital flows, the potential growth –that is, the one compatible with balance of payments equilibrium-, is defined by the ratio of the growth rate of real exports to the income elasticity of imports.

[6] It should be noted, however, that the elasticities estimated by Herranz-Loncán and Tirado (1996) are seriously questionable due to the fact that, in line with Tena (1989), they use the volume indices for imports and exports obtained from the official trade figures (Prados de la Escosura 1982) instead of deflating the series at current prices (revised both for the under-registration of quantities, including smuggled goods, and for errors in the official unit values) in Prados de la Escosura (1986, 1988). These authors also use Tena's (1989) foreign trade price indices which were obtained dividing the corrected current values in index form (Prados de la Escosura 1986) by the volume indices for imports and exports derived from the official trade statistics (Prados de la Escosura 1982). Thus, the implicit price (unit value) indices used are totally meaningless (especially in the case of imports) as they include adjustments in the quantities traded in the numerator but not in the denominator.

[7] Serrano Sanz (1997) departs from Thirlwall as he takes the evolution of relative prices into account. If, alternatively, Herranz-Loncán and Tirado (1996) elasticities are used in Serrano Sanz estimates, the results are not very different. It should be noted that since Serrano Sanz (1997) employed the same data set as Herranz-Loncán and Tirado (1996) so his results are as questionable as theirs (see footnote 5).

external sector would have hindered long run growth.[8] Recently, Oscar Bajo-Rubio (2009), in a long-run view of Spain's external sector, reaches quite a different conclusion: an external restriction on growth, resulting from a potentially unsustainable trade deficit, would only appear in phases of exceptionally high growth.

Thirlwall's (1979) "external constraint on growth" is, however, predicated under the assumption that terms of trade are stable and international capital flows negligible. In the context of the early globalization (1850-1913) such an assumption is far fetched. Intense international commodity and factor flows took place while the terms of trade suffered dramatic changes (O'Rourke and Williamson 1999, Obstfeld and Taylor 2004, Blattman, Hwang and Williamson 2007). In fact, the proponents of the "external constraint on growth" view accept that in the presence of a sustained current account deficit financed through capital inflows their prediction of the long term growth rate is inadequate and the restriction on growth would result from the pace and size of foreign investment (Thirlwall and Hussain 1982: 501). Thus, before jumping to conclusions about a potential external constraint on growth it seems necessary to investigate the current account evolution over time.

To complicate the situation further, Spanish foreign trade statistics have been questioned by Jordi Maluquer de Motes (1999: 110-11, 189) who argues that exports to Cuba and the Philippines were over-exaggerated during the years 1895-98 as they included supplies for the Spanish troops (military equipment but also foodstuffs, clothing, etc.) that did not involved a commercial transaction.[9] Were this the case, military supplies should be removed from exports and considered as current

[8] This would be the case because, in Serrano Sanz's view (1997: 320), the alternative option of financing the deficit through a surplus in other, smaller and more volatile components of the balance of payments, such as services or unilateral transfers, was unlikely.

[9] Maluquer de Motes (1999) accepts the argument put forward by a distinguished representative of the protectionist Basque lobby, Pablo de Alzola y Minondo (1903), pp. 34-35 and 89, who claimed that the commodity trade surplus over 1896-8 was fictitious and pointed out that, in 1897, 130 million Pesetas in specie and substantial quantities of foodstuffs, clothing, and weaponry sent to supply colonial troops during the Cuban War of Independence, were included as exports. Unfortunately, the author does not provide any evidence to prove his assertion. In any case, it should be noted that specie flows are excluded from my estimates of the commodity trade balance (see next section).

Government transfers.[10] Previously, however, one should prove that no commercial transaction had taken place and military supplies were sent to the colonies by the Government. If, alternatively, supplies for troops were provided by private firms, they would represent exports. Furthermore, it could be simply the case that, as a result of the increasing number of Spanish troops in the colonies, the demand for foodstuffs and clothing increased. Another important reason to explain the increase in exports to the colonies (and to the rest of the world) during the late 1890s is the (real effective) depreciation of the Peseta (Figure 9), which improved the competitiveness of Spanish exports. In fact, the estimated values of the price elasticity of exports suggest that, other things been equal, the depreciation would have triggered a significant rise in the volume of exports.[11] Moreover, an examination of the official trade statistics for 1897 indicates that there were no "State trade" separate records for exports.[12] Therefore, I have not corrected official exports figures to allow for the hypothetical inclusion of Government supplies to colonial troops.

Another objection to the revised figures for nineteenth century Spanish foreign trade has been raised by Tortella (1994).[13] A contradiction between the corrected trade balance figures – which reduce the commodity trade deficit in the 1850s and 1860s and provide a surplus after 1870 – and the inflow of foreign capital is highlighted by this author.[14] Tortella (1994: 132) argues that, at the end of the nineteenth century, with a positive inflow of capital and emigrant remittances, it would be hard to explain the

[10] In a private communication, Francisco Comín informs me that it is highly unlikely that they were Government transfers since the cost of military supplies was assumed by Cuba's colonial public budget. As previously during the Ten Years' War (1868-78), the Cuban War of Independence was not financed by Spain's Government budget but by Cuba's colonial budget. Only after the Treaty of Paris was Spain forced to assume the cost of colonial debts. See Comín (2004).

[11] The value of own price elasticity of demand ranged between -1.1 and -1.3 according to Herranz-Loncán and Tirado (1996), pp. 23-4, and Serrano Sanz (1997), p. 123. A detailed analysis of trade between Spain and Cuba over 1878-98 can be found in Piqueras Arenas (1998) in which increasing Spanish exports are attributed to the competitiveness of Spanish goods, only partly as a result of the depreciation of the Peseta.

[12] In fact, strictly military supplies (weapons and ammunition) represent a small share of "general" exports. For example, fire arms only amounted to 3.5 million Pesetas in 1897.

[13] Cf. Prados de la Escosura (1986) for the revision of foreign trade figures between 1850 and 1913 in which official valuation of goods were corrected by using market prices and under-registration of imports was revised upwards to allow for smuggling.

[14] Tortella (1994) combines the official figures for the commodity trade balance with Broder's (1976) estimates for gross foreign investment in order to assess the current account balance.

peseta's depreciation if there was also a trade surplus. This assertion, which seems logical at first sight, is, however, the result of identifying the commodity trade balance with the current account balance, in other words, with the overall balance for goods, services (which includes net income from abroad) and current transfers (including emigrant remittances). Such identification would be only warranted if the balances of services and current transfers were close to equilibrium, or if they cancelled each other. In the case of the balance of services, such an assumption is inconsistent with the size of both external public debt and foreign investment in the private sector which involved large interest and dividend payments. What is more, the assimilation of gross foreign investment with the (negative of the) current account balance is not validated as the latter only records net foreign investment into Spain. Furthermore, migrant remittances, the main component of the balance of current transfers, only became significant at the very end of the period under consideration as Spanish mass emigration was a comparatively late phenomenon in European perspective (Sánchez-Alonso 2000).

Tortella's argument throws up questions worthy of careful consideration. When did emigrant remittances become significant? Why did the depreciation not take place in 1883, as soon as the convertibility of the peseta was suspended? What were the causes behind the delayed, post-1891, depreciation of the peseta? Sardá (1948: 219) offered an early diagnosis: "the economic causes of this depreciation may be linked to the possible existence of domestic inflation caused by the increase in the quantity of silver and bank notes, with repercussions on prices and the trade balance", while adding, "it is better to seek the immediate cause in the evolution of the balance of payments". It is Sardá's second interpretation, focused on the balance of payments, the one that has found support in recent literature (Gutiérrez, Herranz-Loncán and Tirado 1998, Cubel, Palafox and Sudriá 1998, and Sudrià and Tirado 2001).

Alternative interpretations to Sardá's have been offered. Pablo Martín Aceña (1993: 140-1) underlined the association between macroeconomic stability and a stable exchange rate of the peseta. Tortella (1981: 131-48) identified Government financial problems as the main cause of the nominal depreciation of the Spanish currency

between 1891 and 1905. More recently, Marcela Sabaté, Dolores Gadea and Regina Escario (2006) concluded that the Treasury financing needs led to money creation and, hence, to sacrificing a fixed exchange rate.

Unfortunately, the debate is seriously constraint by the lack of quantitative evidence about Spain's international position. A first step requires the reconstruction of the balance of payments on current account, a task to which next section of the paper is devoted.

A preliminary reconstruction of the balance of payments on current account

The balance of payments systematically summarizes the economic transactions of an economy with the rest of the world. These are the transactions involving goods, services, and income; financial claims on, and liabilities to, the rest of the world; and transfers (IMF 1993: 6). I have estimated every item of the balance of payments on current account (commodity and service trade and current transfers). The procedure and sources used in the reconstruction of the main components of balance of payments on current account are summarily discussed in this section, although enough detail is provided for the reader who wants to replicate the computations. Needless to say, these computations are highly tentative and only further research will eliminate the errors that fraught my estimates.

Commodity trade balance

Exports and imports of goods

Free on board (f.o.b.) value of goods exported and imported needs to be computed. Estimates on the basis of Spanish official trade statistics and corrected for quantity underestimation, including an estimate of smuggling through Gibraltar and Portugal, and for price biases by Prados de la Escosura (1986) have been used.[15] Cost, insurance, and freight (c.i.f.) imports were converted into f.o.b. imports to comply with balance of payments conventions.

[15] Official imports for 1850-1913 have now been corrected with a coefficient derived from a sample of Spain's main trading partners instead of with coefficients obtained from commodity and country samples for primary products and manufactures, respectively, as in Prados de la Escosura (1986). This change has been introduced to maintain consistency with Tena (1992) and Martínez Ruíz (2003, 2006) estimates for 1914-1958. The new results are, nonetheless, very close to the earlier ones.

Gold and silver

Quantities of gold and silver recorded in Spanish trade statistics (coins, bars and paste) are considered as monetary gold and silver and, therefore, not included in the estimates of net exports of goods and services.[16]

Service trade balance

Three main categories are considered under this label: a) freight and insurance services, b) tourism, emigrants' funds, passenger services and other services, and c) net income from abroad.

Freight and insurance

Freight income received for exports carried in Spanish ships less freight expenses paid for imports transported in foreign vessels constitute the first item to be computed under this label. Following Douglass North and Alan Heston, the freight-value method, or freight factor, was preferred to the earnings per ton method.[17] Total freight revenues on exports and imports were first computed by applying freight factors to the f.o.b. value of exports and imports and, then, in order to ascertain the freight income on exports (a credit for Spain) the share of tonnage exported carried under Spanish flag was used, while the share of imported tonnage in foreign ships was employed to computing freight expenses on imports.[18] In addition, freight income from carrying trade between foreign ports was assumed, following North and Matthew Simon, to represent a percentage of freight earnings and a 10 percent of freight income on exports was accepted.[19] Port outlays by Spanish ships in foreign ports and by foreign ships in Spain's harbours as payments for port dues, loading and unloading expenses

[16] There are serious doubts about the way in which gold and silver exports and imports were recorded in official trade statistics (Tortella 1974: 121-2). It could be argued that, since Spain never was part of the Gold Standard, trade in gold and silver should be treated as non-monetary. The fact that Spanish monetary authorities often shadowed the gold parity has led me to consider gold and silver exports and imports as monetary.

[17] North and Heston (1960). Cf. also Simon (1960) to whom I tried to follow as closely as the data permitted. Freight factor is the ratio of freight costs to the current value of traded commodities.

[18] Freight factors are taken from Prados de la Escosura (1986). The distribution of tons exported and imported between Spanish and foreign ships comes from Valdaliso (1991).

[19] Cf. North (1960) and Simon (1960) who assumed a 20 percent. Given the less efficient Spanish merchant shipping I arbitrarily adopted a 10 percent.

and coal are assumed to represent a fixed share of shipping earnings and expenses.[20] Foreign ships transported more tonnage than in Spanish vessels as they exhibited, according to Jesús Valdaliso, a more efficient transport capacity ratio.[21] I assumed that more fully loaded vessels made smaller outlays per ship and, hence, port outlays by Spanish ships abroad (a debit) were established at 30 percent of the freight income on exports while port outlays by foreign ships in Spain (a credit) were fixed at 20 percent of freight expenses on imports.[22] Finally, marine insurance income and expenses were computed under the widely shared assumption that underwriting follows the flag and exports in Spanish ships were, hence, usually insured by Spanish companies while imports in foreign vessels were insured by foreign companies.[23] I arbitrarily assumed that insurance rates were identical by Spanish and foreign companies and accepted those used by Prados de la Escosura (1986), to which I added an extra 2 percent to include shipping commissions and brokerage.

Tourism, emigrants' funds, passenger services and other services

Yearly income from tourist services was derived on the basis of expenses per visitor (net of Spanish tourist expenses abroad) calculated by Francisco Jáinaga for 1931, times the annual number of tourists and, then, reflated with a cost of living index to obtain current price estimates.[24] Unfortunately, the total number of tourists is only known since 1929 and was backward projected to 1882 with the rate of variation of passengers arriving by sea, while no tourism was assumed to exist over 1850-1881.[25]

[20] For similar assumptions for the U.S. and the Netherlands, cf. Simon (1960) and Smits et al. (2000).
[21] Cf. Valdaliso (1991), p.71.
[22] The idea that more fully loaded ships made smaller outlays is taken from Simon (1960). These figures roughly correspond to those accepted by Smits et al. (2000).
[23] This assumption is borrowed from Simon (1960). It could, however, over-exaggerate Spain's earnings from marine insurance as it was rather common for Spanish ships to be underwritten by foreign companies (Lloyd's, for example)
[24] Jáinaga (1932). The implicit assumption here is that real expenses per tourist remained constant over time. The cost of living index has resulted from splicing Ojeda's (1988) index for 1909-13 with Reher and Ballesteros (1993) for the previous years. The alternative use of Maluquer de Motes (2006) consumer price index does not change the results significantly.
[25] For passengers arriving by ship, cf. Nicolau (2005), p.139. The low numbers in the early 1880's allows the presumption that tourism was not economically significant until the late nineteenth century.

Spain was a net emigration country over the late nineteenth and early twentieth century.[26] Emigrants carried small sums with them to cover their arrival expenses. It can be reckoned that, by 1931, emigrant funds to America represented, on average, 200 gold pesetas, that is, 400 current pesetas, including the fare and small amounts to cover arrival expenses.[27] If the fare represented around 340 current pesetas, 60 pesetas would correspond to emigrant's funds.[28] However, Jáinaga only added "a small amount for unavoidable expenses", to the cost of the passage, and this sum is most likely an underestimate.[29] I, therefore, accepted a higher estimate of 100 pesetas for those emigrating to America and one-tenth, 10 pesetas, for those to Algeria (and to France) in the eve of World War I.[30] These average sums times the number of emigrants to America, Algeria and France cast a yearly series of emigrants' funds that was reflated with a wage index.[31]

In addition, revenues and expenses from passenger transport have to be taken into account. Fares paid by tourists carried by Spanish ships and by returning immigrants returning in Spanish vessels are included on the credit side, while fares paid by emigrants to foreign shipping companies represented a debit. The number of migrants provided by Blanca Sánchez-Alonso (1995) for 1882-1913 has been completed with an estimate of migration for the years 1850-1881 on the basis of scattered foreign evidence.[32] The share of arrivals and departures in Spanish and foreign

[26] Cf. Sánchez-Alonso (1995).
[27] Figure computed from Jáinaga (1932).
[28] Vázquez (1988) provides third class fares to Cuba (325 pesetas), Argentina and Brazil (356 pesetas) in 1930 that yield an average of 340 pesetas.
[29] This figure, 60 pesetas, corresponds to a lower bound estimate of the average funds brought by Italian immigrants into the U.S.A. in 1892, according to Simon (1960), pp. 676-677.
[30] The one to ten ratio was derived by comparing fares to America (Vázquez (1988)) with those to Algeria (Ministerio de Trabajo 1935) in 1934. These are roughly similar to the lower bound figures produced by Marolla and Roccas (1991), p. 252, for Italian emigrants to America and Europe in 1911. Llordén (1988), p. 62, on the other hand, provides a larger sum for Spanish emigrants' funds in the 1860's, 125-200 pesetas, once the fare is deducted.
[31] Unskilled wages come from Reher and Ballesteros (1993).
[32] For 1850-1881, Figures of Spanish immigration in Argentina, Uruguay, Brazil and the U.S.A., provided by the recipient countries' official statistics were completed with emigration to Cuba in 1860-1861 from *Anuario(s) Estadístico(s)* that was assumed to remain constant over the period. Emigration to Algeria was derived from Spanish arrivals in Alger and Oran for the years 1872-1881, while the figures for 1850-1871 were estimated under the arbitrary assumption that the share of emigrants who remained in Algeria after one year of residence was similar to the one over the period 1872-1881 (25 percent). Estimates for returned migration was computed by assuming that the average returns from America for 1869-73 were acceptable for 1850-1868 while 92 percent of emigrants to Algeria returned home within the first year. A

ships is provided by official migration statistics from 1911 onwards and shows a stable pattern, roughly one third of emigrants returned home under Spanish flag and three-fourths left in foreign ships.[33] These shares were accepted for the nineteenth and early twentieth century. The fares for trips to Argentina, Cuba and Algeria are derived from Alejandro Vázquez, Moisés Llordén and official emigration statistics.[34]

Lastly, Government transactions (credits and debits) were, in turn, taken from official sources.[35]

Net income from abroad

Ascertaining the amount of and the returns to each type of capital asset invested abroad and of foreign capital invested at home is fraught with so many difficulties that has often discouraged the direct estimate of net incomes of foreign capital in historical studies.[36]

The alternative indirect approach starts from a benchmark estimate of a country's international indebtedness at the beginning of the considered period that is yearly updated with the net inflow of capital. Such a convenient approach produces, however, a very crude estimate as the initial amount of a country's international indebtedness is not accurately computed and, especially, the interest rate used does not capture the average returns of a wide and changing variety of capital assets. Any alteration in the interest rate applied and/or in the initial estimate of international

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consistency check of the yearly migration data was performed using the migration balances from population censuses along the lines described in Sánchez-Alonso (1995). Data for returned migration from America, 1869-1881, was taken from Yáñez (1994), p. 120. Data on migration to Algeria over 1850-1881 comes from Vilar (1989).

[33] Consejo Superior de Emigración (1916) offers evidence for 1911-15. The actual percentages used were 0.354 for returned migration under Spanish flag and 0.764 for emigrants in foreign ships.

[34] Cf. Llordén (1988) for fares to Havana over 1862-1876; Vázquez (1988) provides lowest fares to Cuba, Brazil and Argentina over 1880-1913 at 1913 prices that I have reflated to obtain current price fares using the same Sardá (1948) wholesale price index he employed to derive constant price fares. Missing years were interpolated (1862 fares to Cuba were accepted for 1850-61; fares to Argentina prior 1880 were assumed to moved along fares to Cuba). I assumed that fares to Algeria moved along the fares to America and that the fares ratio Algeria/Argentina in 1934 (Ministerio de Trabajo 1935) was stable over the considered period. I also assumed that tourist fares from Europe moved along migrants' fares.

[35] Instituto de Estudios Fiscales (1976).

[36] This is why in their pioneering research on Britain and the U.S. in the nineteenth century Albert Imlah (1958), North (1960), and Simon (1960) employed an indirect approach. Later Maurice Lévy-Leboyer (1977) and Elise Brezis (1995) followed the same approach for nineteenth century France and eighteenth century Britain, respectively.

indebtedness provokes large differences in absolute terms over the long run (North 1966: 574-5).

Therefore, in spite of its shortcomings, I have preferred to use a direct approach. Due to dearth of data only very crude estimates of foreign capital incomes (dividends and interest payments to private foreign capital and external debt service), on the debit side, and of Spanish labour returns abroad (wages and salaries), on the credit side, have been carried out. These are the main components of net income from abroad, as neither Spanish investments abroad nor foreign labour in Spain were significant over the period considered.

On the debit side, three main items are distinguished, the external debt service, dividends and interests paid to railway shares and debentures owned by foreigners, and returns to foreign factors in mining.[37]

Service payments on the external debt have been computed by applying specific interest rates to each class of Government bonds.[38] Some caveats are needed about the volume of external public debt in foreign hands. After the sovereign debt re-scheduling in 1882, which exchanged existing foreign debt for new bonds (at 43.75 percent of its nominal value), and simultaneously with the abandonment of gold convertibility of Spanish currency in 1883, debt repatriation started as Spaniards found more secure to invest in bonds serviced in gold pesetas as a shelter against currency depreciation.[39] Since 1891, when the peseta started depreciating, Spanish citizens purchased external debt bonds while foreign bondholders tried to get rid of them. The Government reacted by introducing the so called "affidavit" in 1898, which implied that only non-resident bondholders would continue receiving their interest payments in gold pesetas (or in French francs), while the rest would be paid in current pesetas (and offered to convert their external debt bonds into internal debt). As a result, the external public debt fell, in

[37] According to Stone (1999), p. 251, public debt, railways, and mining represented, on average, 24.3, 25.3 and 31.2 percent, respectively, of total British portfolio investment in Spain over 1865-1913.
[38] External debt figures and the interest rates applied are provided in Fernández Acha (1976).
[39] This appears to be a case of "original sin", to use Eichengreen and Hausmann (1999) expression to describe external debt denominated in gold or in foreign currency. For this paragraph I draw on Sardá (1948) who provides a detailed evaluation of Spain's external public debt in the late nineteenth and early twentieth century.

1903, to 52.7 percent of its volume in 1898; which implies that Spanish residents had purchased almost half Spain's external public debt between 1891 and 1898. Hence, only half of the interests paid (52.7 percent) on external debt should be computed as payments to foreign capital invested in external debt over 1891-1898. I have, then, assumed that the interest payments effectively paid to foreign bondholders over 1891-1902 should be computed on the volume of external debt in existence in 1903.[40] Moreover, in so far external debt was serviced in gold pesetas, the amount of interests paid (obtained by applying the interest rate to foreign debt in non residents' hands) has to be increased by the depreciation rate of the current peseta with respect to the gold peseta over 1891-1914.[41]

Railways companies were highly concentrated and the detailed research by Pedro Tedde de Lorca provides enough evidence to estimate dividends on share capital and interests on debentures paid to non-residents.[42] Dividends paid to shareholders and interest payments on debentures issued by the three major railway companies are available from the mid-nineteenth century onwards.[43] Both the percentage represented by the three main companies in total capital invested in railways and the proportion of railways capital in foreign hands have to be ascertained in order to compute the returns to foreign capital invested in Spanish railways. Tedde de Lorca provides total capital shares and bonds held by the three major companies and its proportion in total investment, and, on the basis of Albert Broder's research, also the participation of French capital in total capital invested in 1867, at the time of network construction, and over the nineteenth century.[44] Broder's estimates of foreign investment in railways allowed, in turn, to re-scaling French railways capital to cover all foreign capital.[45]

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[40] An alternative hypothesis is to assume that the external public debt gradually passed into Spanish hands. The results of this alternative computation although provide higher interest payments do not change the trend of the estimates used here.

[41] This is the usual result of the so called "original sin". The depreciation rate of the peseta against the French franc provided by Martín Aceña and Pons (2005) has been used.

[42] Cf. Tedde de Lorca (1978, 1980) for research on Norte, MZA and Andaluces, the three main railway companies. Evidence on foreign investment in railways has been gathered in Broder (1976, 1981).

[43] Tedde de Lorca (1978), Appendices IV-9 and IV-18, provides the data on dividends and interests paid by Norte and MZA, while Tedde de Lorca (1980), pp. 44-45, presents the same evidence for Andaluces.

[44] Cf. Tedde de Lorca (1978), pp. 243-4, 248-51, 256-7; (1980), pp. 37 and 40. Thus, I have estimated, firstly, the dividend and interest payments corresponding to French citizens by applying the share of

Foreign capital in mining was mainly British. On the basis of effective capital invested by British companies and cumulated total foreign investment in mining, it can be suggested that, over 1870-1913, more than half of all foreign capital in Spanish mining came from the U.K..[46] Decadal averages of dividend and interest payments to British companies are provided by Charles Harvey and Peter Taylor that were re-scaled to include all payments to foreign capital in Spanish mining for 1851-1913, assuming similar rates of return in non-British foreign investment, and using the estimated British participation in total foreign capital.[47] Estimates of foreign capital returns in mining derived through this procedure were, then, distributed annually with an index of non-retained value in Spanish mineral exports.[48]

Assessing returns to Spanish labour employed abroad is a complex task as labour incomes (wages and salaries), that belong to the balance of services, have to be

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French capital in total capital for the three big railway companies. Then, I have re-scaled the resulting sum by the share of French capital invested in these three companies over total French investment in Spanish railways. The latter share is only available for the years 1867 and 1890 so I have used that one for 1867 for the pre-1867 years, and the 1890 share for the post-1890 period, while I interpolated log-linearly 1867 and 1890 shares over 1868-1889.

[45] I re-scaled interest and dividend payments to French capital by its share in total foreign capital invested in Spanish railways using the decennial shares provided over 1850-1913 by Broder (1976), p. 62

[46] Cf. Harvey and Taylor (1987), p. 197, for British capital (effective share capital and debentures and mortgage bonds). Cumulated total foreign investment (excluding railways) and cumulated French investment in mining were derived from Broder (1976, 1981). When only French and British capital in mining are considered (the large majority of it), the British share ranged from 63 to 73 percent over 1870-1900, the mining boom years (and only 22-41 percent in the earlier period 1851-70). If, alternatively, Broder's estimates of non-railway investment from other countries are cumulated, British capital represented from 52 to 61 percent over 1870-1900 (22-31 percent in 1851-70). Evidence in Muñoz, Roldán and Serrano (1976) indicates that British capital was above 50 percent in the years 1900-1913 (53 percent on average for 1900 and 1912),.

[47] Unfortunately, Chastagnaret (2000) does not carry out a similar estimate to that of Harvey and Taylor (1987) for the British capital invested in mining that would have precluded this crude estimate. Thus, British participation in total foreign capital was assumed to be 30 percent in 1850-1870, 60 percent in 1870-1890, and 50 percent in 1890-1913 (see the previous footnote).

[48] Non-retained exports represent the value of exports receipts that accrued to foreign productive factors used in mining production and, therefore, were not kept in Spain. Non-retained values over total mineral export proceeds represent 0.35 for iron ore, 0.40 for lead, 0.49 and 0.625 for copper pyrites (before and after 1896), 0.54 for mercury, according to Prados de la Escosura (1988) who took them from González Portilla (1981), Broder (1981), Harvey (1981) and Nadal (1975), respectively. The revisionist work by Escudero (1996) suggests that these shares should be revised upwards and Témime, Broder and Chastagneret (1982) pointed out that 70-75 percent of export proceeds were not retained in Spain. Escudero (1998) has estimated that the share of foreign returns in Basque iron ore mining represented 39.5 percent (204 million pesetas) of its total over 1876-1913, to which should be added the differential between market prices and much lower preferential prices (that foreign mining companies charged their matrix firms abroad) times the quantities sold at preferential prices, approximately 200 million pesetas, so the share of non-retained exports would be over half of total export proceeds. I have used, then, non-retained shares of 0.55 for iron ore, 0.90 for lead, and 0.73 for pyrites.

distinguished from emigrants' remittances, that belong to the balance of unilateral transfers. Actually, the distinction can only be made since 1917 and I accepted that only 5 percent of those emigrating to America and 60 percent of those migrating to Algeria returned within the year over 1850-1913.[49] The next step was to assess the amount that, on average, was brought home by Spanish workers returning after one year, or less, away from home. I computed an average sum that was taken home by the temporary emigrant or sent annually by the long-term emigrant to their relatives and friends. Estimates of total sums sent home by emigrants have been gathered in recent historical research for the early twentieth century.[50] José Ramón García López (1992) presents the most comprehensive estimates for the years prior World War I, 250-300 million pesetas as an annual average over 1906-1910 that amounts around 340-400 pesetas per emigrant (either returning home or sending remittances). I accepted 400 pesetas per emigrant as a benchmark that was, then, projected backwards and forward with a nominal wage index constructed for the destination countries and adjusted for exchange rate between the peseta and each destination country's currency over 1850-1913.[51] Finally, returns to Spanish labour abroad were obtained multiplying the annual sum per head times the number of emigrants returning home within their first year abroad.

Current transfers balance

Emigrants' remittances constituted its main historical component in Spain prior to 1913. Not all emigrants sent money home while being abroad. In historical estimates it is usually accepted that most of those who established themselves abroad stopped sending money after five or six years either because they have already paid for their

[49] Evidence on transatlantic emigrants returned after less than a year abroad is presented in Yáñez (1994) for 1917-1921 and 1925-1930 and in Ministerio de Trabajo (1935), p. 14, for 1926-1934. It represents between 3.5 and 6.2 percent of total emigration to America, averaging 5 percent. I have accepted 5 percent for the period 1850-1913. For the share of emigrants to Algeria returning within a year, Bonmatí (1988), p.135, points to 59 percent of total emigrants.

[50] Unfortunately, no distinction can be made between short- and long-term migrants. Contemporary estimates are collected in Chamorro (1976), for 1899, 1900 and 1904; Vázquez (1988) for 1906, 1908-1913 and 1920-1922; and García López (1992), averages for 1906-1910 and 1920-1921.

[51] Nominal wages for Argentina are collected in Williamson (1995). Zanetti and García (1977) provide nominal wages for Cuba from 1903 onwards. French nominal wages from Williamson (1995) are used for emigrants to France and Algeria. The trading exchange rates of the peseta against the peso, the French franc and the US dollar are computed on the basis of Cortés Conde (1979), Della Paolera (1988), and Martín Aceña (1989).

debts or because they planned to invest in the receiving country. I arbitrarily assumed that emigrants only sent money home within their first five years and computed emigrants' remittances by multiplying the estimated average sum per emigrant times the cumulative figure of emigrants arrived in the last five years, after deducting those migrants who returned home within one year.[52]

The balance of payments on current account and the net inflow of capital

Adding up the balances of goods, services –including net payments to foreign factors-, and unilateral transfers, the balance of payments on current account is obtained.

The net inflow of capital -that is the capital account balance-, has been derived, in turn, by adding the negative of the current account balance to the increase in foreign reserves, computed from yearly estimates of the stock of gold and silver.[53] An alternative estimate of annual variation in reserves is provided by net exports of gold and silver in the official trade statistics. However its lack of coverage of total specie flows, due to smuggling, did not advice its use (Tortella 1974: 121-2).[54]

Lastly, annual series of Spain's international indebtedness can be obtained by adding up the net inflow of capital to the level of indebtedness at the beginning of each year. The level of international indebtedness at the beginning of 1850 is, at best, an

[52] As explained in the previous section, due to lack of data, no distinction has been made between the sum brought back home by the emigrant who returned home within his/her first year abroad and the average remittances sent during the five first years abroad by the rest of emigrants. Following Simon (1960) I have attributed double weight to the last on of each five year period considered.

[53] The stock of gold and silver for 1850-73 comes from Tortella (1982) and is reproduced in Martín Aceña and Pons (2005), p. 678-9. The gold stock derives, for 1874-1900, from Tortella (1974), pp. 128-32, -who, for the years 1874-96, linearly interpolated contemporary estimates of the stock of gold-; and for 1901-13, from Martín Aceña (1985), pp.93-7 (gold reserves). The stock of silver for 1874-1913 has been obtained from Anes (1974), pp. 111-2. A similar approach was used for nineteenth century U.S. by North (1960), p. 599.

[54] I have checked the figures on net gold exports in the Spanish official statistics against those provided by the statistics of two main trading partners of Spain, the U.K. and the U.S.A. The comparison suggests that Spain was a net gold importer and whenever she became an exporter, the size of the surplus was small. Net coinage of gold and silver –that is, excluding coinage of already existing currency-, a proxy for net gold and silver imports, continued during the last quarter of the nineteenth century although interruptions took place (Tortella 1974, Anes 1974). These findings are at odds with the historical literature surveyed by Tortella (1974) in which claims of large illegal gold exports during the 1880s are frequent. For example, Barthe (1905) reckoned a gold outflow of 630 million pesetas over 1883-91. Sardá (1948), p. 202, suggests, in turn, a figure of 1,000 million over 1881-91. A possible alternative explanation would be that gold hoarding -another reason for gold disappearance in Tortella's view- prevailed over illegal gold exports.

informed guess and has been assumed to be equivalent to the nominal value of external public debt, 1505 million pesetas (Comín 1996: 131), since private foreign investment has been considered negligible until mid-nineteenth century (Sardá 1948: 262). Needless to say the resulting estimates are very tentative and should be taken with a grain of salt.

Trends in Spain's international position

Two clearly defined periods can be distinguished in the commodity trade balance: one of deficit -but for three years, 1854-6-, from 1850 to the 1866 crisis, followed by one of surplus -but for one year, 1876-, up to the eve of World War I (Figure 1). When we turn to the balance of services, a persistent deficit is observed. Transport, tourism and intergovernmental transactions show a negative sign (Figure 2) and, more important, its main item, net income from abroad, too (Figure 3). The service of the public debt dominated net income from abroad until the beginning of the Restoration (1876). After the sovereign debt re-scheduling (1882) and, especially, from 1890 onwards, this situation changed with net returns to foreign capital in railways and mining gaining weight. Emigrant remittances became increasingly important from the late 1880s and increased dramatically since 1904 offsetting, at least in part, the net payments to foreign factors (Figure 4).

Adding up the commodity, services, and current transfers balances results in the current account balance. Two distinctive phases with 1891 as a turning point can be distinguished. A sustained current account deficit was in place throughout 1850-90 – except for four years. Then, from 1891 up to World War I, a surplus prevailed with the years 1899-1904 as the only exception (Figure 5).[55] The highly tentative estimates of the net inflow of capital match the inverse pattern of the current account balance although exhibit a higher level over 1859-73 and, especially, a lower one during the years 1883-90 (Figure 6).[56] Finally, crude estimates of the annual balance of Spain's

[55] The finding of a current account surplus from 1891 onwards confirms contemporary quantitative assessments of Spain's International position. Cf. Prados de la Escosura (1988), p. 196.
[56] A comparison between the negative of the current account balance and the net capital inflow is provided in Figure A.1 (Appendix).

international indebtedness are presented in Figure 7.[57] It appears that international indebtedness grew up to 1879, stabilized, then, until 1890, and exhibited a steady decline thereafter, but for a short reversal over 1899-1904.[58]

The sharp contrast between the commodity and current account balances is clearly a most striking result. The commodity trade balance is positive in 50 out of the 64 years, with deficit concentrated in the years 1858-66 -in which large imports associated to railways construction took place-; meanwhile the current account was in deficit for most of the time except for 1891-98 and 1905-13. These two periods and 1858-66 are the only ones in which the signs of the two balances match each other.

The divergent evolution of the various components of the balance of payments allow us to reconcile the positions of those who maintained that, from 1870 onwards, the commodity trade deficit resulting from the official figures was implausible (Prados de la Escosura 1986) and those who stressed that Spain's international position was one of deficit (Sardá 1948, Tortella, 1994). The explanation for the apparent contradiction between the two balances is to be found in the growing role played by net income from abroad, that was not counter-balanced by current transfers, as emigrant remittances only became significant from 1904 onwards. Thus, the current account deficit appears to be associated to the costs of investing in new infrastructures and exploiting natural resources.

How could the current account surplus over the years 1891-98 and 1905-13 be explained? The reasons behind the change from a current account deficit to a surplus can be explored in the light of the phenomenon known as "sudden stops". Sebastian Edwards (2004: 19) has defined a sudden stop episode as "an abrupt and major

[57] Due to its highly conjectural nature I have computed "control" estimates of Spain's indebtedness on the basis of the negative of the current account balance and the initial level of indebtedness. Their comparison in Figure A.2 (Appendix) suggests that the main discrepancy shown by the "control" estimates is, in addition to a lower level of indebtedness, that the rise of Spain's debtor position was sustained up to 1891.

[58] These results confirm Sardá (1948: 274) upward trend up to 1881 (4,200 million Pesetas) but do not correspond to the slightly higher level he estimated for 1913 (4,500 million). Sardá's lower levels stem from the fact that he uses the so called "effective" external debt on the grounds that external public debt was never traded above 50 percent of its nominal value Sardá (1948), p. 257, and assumed that only represented 800 million pesetas by mid-nineteenth century.

reduction in capital inflow to a country that up to that time had been receiving large volumes of foreign capital". Sudden stops are, thus, sharp reversals in capital inflows which constrict domestic consumption smoothing.[59] During the first wave of financial globalization that took place in the late nineteenth and early twentieth century two main effects are associated to sudden stops: drops in the exchange rate and deceleration of economic activity.[60]

Exogenous forces conditioned sudden stops. Monetary tightening in Core countries (increases in central bank discount rates, for example) represented a significant exogenous element in the reversal of capital inflows. Also international crisis irradiating from capital importer countries, such as Argentina during the Baring crisis in the early 1890s, constituted an exogenous force to be taken on board. However, the fact that not all capital importers suffered to the same extent a given sudden stop suggests that endogenous factors mattered.

Let us examine the Spanish experience in the light of sudden stops (*SS*, hereafter). In Figure 8, international capital flows, proxied by British, French and German aggregated current account (excluding all gold flows), are confronted with the net capital inflow in Spain, both expressed in Sterling.[61] Several slowdown episodes in international capital flows are observed starting in 1866, 1873, 1890, and 1896, of which those of 1873 and 1890 appear to have special intensity. In Spain, sudden stops can be observed in 1866-9, 1876-80, 1890-6, and 1904-7, with especial intensity in the last two episodes. Interestingly, the last sudden stop, at odds with the previous ones, occurred while international capital exports were accelerating during the decade prior to World War I.

[59] Interestingly, this approach has been a neglected in the Spanish historical literature. This is, perhaps, attributable to the isolated consideration of Spain's experience.
[60] The contraction in external financing implies that the current account has to improve through currency depreciation and GDP contraction unless international reserves absorb the shock. Cf. Catao's (2007) excellent study on which I draw for the next paragraphs. Also, Bordo, Cavallo, and Meissner (2010).
[61] Data for net capital exports from the U.K., France, and Germany come from Jones and Obstfeld (1997). Alternative estimates using the negative of the current account as a proxy for the net capital inflow in Spain are presented in Figure A.3 (Appendix). The same tendencies are shown in Figures 8 and A.3.

Which of the predicted effects of the *SS* are found in the Spanish experience? To begin with, currency crashes occurred during 1891-3 and 1896-8, but not in earlier *SS*, or in 1904-7 -when the opposite happened and the peseta returned to its previous position in 1891- (Figure 9).[62] Why such an uneven response to different *SS*? The consequences of two exogenous events, the Baring crisis (1890) and the Cuban War of Independence (1896-8) are, no doubt, part of the explanation. According to Luis Catao (2007: 266-9), during the first wave of financial globalization, countries that experienced rapid monetary expansion and had a lax fiscal behaviour were more prone to currency crashes.[63] In fact, money supply (M2) appears to have grown above GDP in Spain during the cyclical upswings 1885-9 and 1896-8 (Figure 10). Meanwhile, the public debt/GDP ratio, sharply reduced as a result of the sovereign debt re-scheduling in 1882, experienced a sustained increase over 1893-6 and went further up in the aftermath of Cuban War of Independence, 1899-1903 (Figure 11).[64]

The simultaneity of sudden stops and exchange rate drops during the 1890s tends to play down the role of the suspension of the gold convertibility of the peseta (1883) suggesting that, during the 1880s, as long as an inflow of foreign capital continued, the Spanish currency remained stable, regardless whether the exchange rate floated or not (Figure 9).

This result has implications for the debate between those who emphasise the advantages of a floating exchange rate for a developing economy due to the high opportunity cost of maintaining gold reserves as well as the shock absorber role of the

[62] The 1890s sudden stops conform with Calvo et al (2003) model in which an abrupt interruption of foreign capital inflow leads to a deep current account reversal and a substantial depreciation of the real exchange rate (measured as domestic currency per unit of foreign currency). The multilateral nominal effective exchange rate has been computed using Spain's bilateral trade weights for most of its trading partners (Prados de la Escosura and Tena (1994). The real effective exchange rate is a multilateral rate index calculated using CPIs for the main trading partners and the private consumption deflator for Spain (Prados de la Escosura 2003).

[63] Also Edwards (2004), p. 33, points out that the probability of experiencing a current account reversal is higher for a country with a large current account deficit, a high external debt ratio, and a rapid rate of growth of domestic credit.

[64] Interestingly, while Cuban War of independence (1896-8) does not seem to have had a major direct negative effect on Spain's economy, the macroeconomic instability brought about by the financing of the military conflict was to have significant effects on Spain's position of international isolation. Cf. Fraile and Escribano (1998). On the financing of the war, cf. Maluquer de Motes (1996) and Tedde de Lorca (1999).

exchange rate (Sardá 1948, Tortella 1974, Flandreau and Zumer 2004), and those who stress that belonging to the Gold Standard sent the right signal of compliance with orthodox financial practice to capital markets (Martín Aceña 1993, Bordo and Rockoff 1996). To the extent that it could be factored out, macroeconomic stability rather than belonging to the Gold Standard seems to have been the relevant signal for international investors.

When macroeconomic discipline was abandoned at the time of the Baring crisis and, then, again, by the need to financing the Cuban War of Independence, the control mechanism which stopped the peseta from falling disappeared.[65] Macroeconomic instability, especially inflation, which soared over 1895-1904 (Figure 12), had negative effects on the reputation of Spain's economy making it less attractive to international capital, as suggested by the spread between the discount rate of the Bank of Spain and those of the central banks in the main capital investing countries (Figure 13).[66]

After the independence of Cuba, Puerto Rico and the Philippines a current account deficit reappeared between 1899 and 1906, that could be associated to the repatriation of capital from the former colonies in the sound economic environment provided by Fernández-Villaverde's stabilization plan (Comín 1999).

Why, then, the sudden stop of 1904-7, at the time of an international expansion of capital flows, and why the current account reversal was accompanied by an improvement in the exchange rate of the peseta? There are good reasons to explain why the exchange rate did not drop. The fact that, for most of the period up to World War I, inflation remained moderate and the debt/GDP and M2/GDP ratios continue falling, as opposed to what had happened in the 1890s, help explain why a currency crash was

[65] For those who favour the importance of being part of the Gold Standard, the argument would be that, as long as the belief in the authorities' commitment to restoring convertibility at the pre-1883 parity existed in the markets, the peseta would remain unaltered. Then, when macroeconomic instability occurred, economic agents realized that the suspension of convertibility was not a temporary measure and that the authorities had no intention of restoring convertibility. This situation led to an outflow of capital which dragged the peseta down (Cf. Bordo and Kydland 1995). Martín Aceña (1993), pp. 140-5, notes that the hopes of a rapid return to the parity of 1883, together with the government's restrictive policies, would have contributed to the peseta's stability.

[66] Martín Aceña (1993), p. 155; Broder (1976), p. 62. Bordo and Rockoff (1996), p. 414, claim that Spain had a 3 percent risk premium as a non-gold standard country is confirmed by the evidence presented in Figure 13.

avoided. Furthermore, no exogenous events such as the Cuban War of Independence took place while emigrant remittances played an important offsetting role in the current account balance (Figure 4). But, why was Spain left aside from the international wave of investment prior to World War I? It is noteworthy that Italian and the Portuguese current account balances also experienced a surplus during this period (Bordo et al 2010, Catao 2007). Meanwhile Argentina, Brazil, Canada, and Russia became the main capital importers. Why were South-western European countries excluded? Was it because investment opportunities had dried up, or because the opportunity cost was too high? It would be worth investigating the extent to which the decline in a sustainable current account deficit results from a reduction in foreigners' demand of an emerging country's assets (Edwards 2004). In Spain, by the end of the nineteenth century, those sectors that had attracted most foreign capital were already developed: the railways network was completed and mining resources fully exploited. Perhaps this fact helps explain why, in the absence of new investment opportunities international capital inflow into Spain slowed down.[67] This is, no doubt, an avenue for further research.

To sum up, the idea that the suspension of the convertibility of the peseta in 1883 and its delayed effect in terms of a currency crash in the 1890s was the result of endemic balance of payment problems is not supported by the evidence presented here. On the contrary, it is the alternative view that sudden stops, in a context of domestic financial imperfections, are to be blamed.

Did international integration hold back growth?

The traditional view among Spanish economic historians, reinforced by those who argue in terms of the "external constraint on growth" approach, associates a current account deficit to a deterioration of the economic situation or a threat to growth. Conversely, a current account reversal -that is, a surplus on current account- will imply, according to the sudden stop literature, a decline in investment and, thus, in economic

[67] As from the beginning of the 20th century, investments in public utilities (electricity, gas) and, later, financial investments (Sardá 1948, p. 268) were to become more significant. See the British investments in these sectors for the period up to 1914 in Stone (1999).

growth that tends to intensify if the country is less opened (Edwards 2004, Bordo et al. 2010).

No consensus has been reached about the importance of a large and resilient current account deficit for growth. The optimistic view emphasizes the intertemporal nature of the current account arguing that to the extent they reflect a rise in investment there is no reason for concern (Sachs 1981, Corden 1994). The opposite, pessimistic view, epitomized in Thirlwall's approach (1979), has a more recent expression in Fischer (1988) to whom the first sign of a crisis is the current account deficit. In this context of uncertainty, historical research can make a useful contribution.

How did the interruption of foreign capital inflow affect economic growth in Spain?

Let us begin with the current account identity:

$$CAB = X - M + NCT + NY = S - I \qquad (1),$$

Where CAB is the current account balance; X and M are exports and imports of goods and services, respectively; NCT, net current transfers; and NY, net income from abroad; while CAB equals the difference between gross domestic saving (S) and investment (I).[68] Here we can normalize with respect to GDP (Y), to provide an idea of the relative size of each item,

$$CAB/Y = S/Y - I/Y \qquad (2),$$

Two distinctive phases can be observed in the relationship between investment and saving with 1890 as the turning point (Figure 14). Domestic investment was above saving between 1850 and 1890 which means that foreign capital supplemented domestic saving to meet investment demand. The gap between investment and saving was particularly noticeable from 1850 to 1866. This upsurge of investment, that reached 10 percent of GDP in the early 1860s, was associated to the construction of the railways network in which foreign capital played a non negligible role. From 1890 up to eve of

[68] If we start from the basic national account identity, GDP = C + G + I + X–M, where C and G are private and Government consumption; I, gross domestic investment, and X and M are exports and import of goods and services, respectively. We, then, define the current account balance (CAB) as, CAB = X – M + NCT + NY, and the Gross National Product as GNP = C + G + I + CAB. We can derive gross domestic saving as S = GNP – C - G. Thus, S = I + CAB, so CAB = S – I.

World War I investment depended almost exclusively on domestic saving as a current account surplus prevailed (exception made of the years 1899-1904). All in all, investment and saving followed the same trend with investment remaining below 8 percent of GDP up to 1898, but for the years of the railway construction boom.

The small size of investment and saving, in terms of GDP, hides the relative importance of foreign investment within gross domestic capital formation in Spain. Starting from expression (2) we can decompose gross domestic investment into gross domestic saving (private, Sp/Y, and Government, Sg/Y, saving) and the (negative of the) current account balance (Figure 15).

$$I/Y = S/Y - CAB/Y = Sp/Y + Sg/Y - CAB/Y \qquad (3),$$

Government saving was negative up to 1891, especially between 1861 and 1873, and was not counter-balanced by a rise in private saving but by a current account deficit financed through a net inflow of foreign capital. This way, the decrease in government saving did not imply a constraint to the investment ratio. An implication is that a decline of investment derived from a decrease in government saving -the crowding out hypothesis sometimes discussed in the literature-, is not confirmed by the evidence.

The relative importance of the net capital inflow contribution to capital formation is captured by its share of gross investment (Figure 16).[69] Between 1850 and 1890, foreign capital financed one-fifth of domestic investment, reaching, on average, almost two-fifths of it during the third quarter of the nineteenth century. Conversely, in the years 1891-1913, the net outflow of capital implied a contraction of domestic investment (13 percent), that reached nearly one-third over 1891-1898, but experienced a reversal episode over 1899-1904, in which the net inflow of foreign capital represented 15 percent of gross capital formation.

These are far from negligible figures, but how large was the impact of net capital inflow on economic growth? I have used a growth accounting framework to investigate how much would the capital stock have varied if investment demand had been met

[69] Alternatively, I have measured the relative size of the net capital inflow by the proportion that the negative of the current account deficit plus the increase in foreign reserves represent of gross investment (Figure A.4 of the Appendix). The results are very similar to those in Figure 16.

exclusively through domestic saving, and, then, how much would have GDP per head differed.[70]

The absence of net inflow of foreign capital is simulated by replacing actual investment with saving in the estimates of capital stock.[71] It could be argued that foreign capital was invested in non-residential structures, machinery and transport equipment to larger extent than in residential structures. This option has not been explored here, but it can be presumed that the results form this counterfactual exercise only provide a lower bound estimate. Furthermore, we could speculate that the investment by nationals would have been lower without the stimulus of foreign investment, as well as employment would have been lower without this increase in capital formation.

A comparison between actual and counterfactual capital stock is provided in Figure 17.[72] Over the period 1850-1890 the counterfactual level of capital stock is lower and its pace of growth milder than the actual one (3.1 against 3.4 percent), especially during years of intensive capital inflow such as those of the railways construction (2.9 versus 4.9 percent)-. As regards the years 1891-1913, the question is how larger the capital stock would have been if all saving would have been invested domestically, that is, without a net outflow of capital. In such a scenario the actual capital stock would be smaller and its growth slower than the counterfactual one (2.5 versus 2.8 percent), and even more during the sudden stops of the 1890s (1.9 versus 2.9 percent).

Next, the impact on the growth of GDP per head has been assessed by comparing the actual and counterfactual scenarios. The simulation exercise provides once again lower bound estimates as foreign capital inflow is assumed to have an impact on capital accumulation, but not on the efficiency in the use of production factors. Nonetheless, the new technology embodied in machinery and transport equipment financed by foreign investment would have improved efficiency and, thus,

[70] I have used the same data base and accounting framework employed in Prados de la Escosura and Rosés (2009, 2010).
[71] In the simulations I distributed the difference between investment and saving proportionally among the different type of assets.
[72] Alternative estimates of actual and counterfactual stock of capital have been constructed using the negative of the current account balance as a proxy of the net capital inflow and are shown in Figure A.5 (Appendix). No significant disparities appear between Figures 17 and A.5.

increased total factor productivity. This would be especially the case during the railway construction and the mining boom of the third quarter of the nineteenth century.[73]

Actual and counterfactual growth rates of GDP per head over distinctive phases of economic performance are offered in Table 1.[74] Two different phases are considered that correspond to the long swings in Spanish economic growth, 1850-1883 and 1884-1913 (Prados de la Escosura 2007).[75] In the first one, per capita GDP would have grown at a slightly lower rate in the counterfactual scenario of the lack of a net inflow of foreign capital. The differential increases during the railways construction. In the post-1884 years, the counterfactual scenario of the absence of a net outflow of capital produces a faster pace of growth. This is more intense during sudden stops, particularly in those of the 1890s.

The results of this highly tentative and speculative exercise help to highlight the significance of Spain's openness and integration in the international capital market. Economic growth intensified during the late nineteenth century as foreign capital complemented domestic saving to meet a growing investment demand and, although difficult to quantify, improvements in the quality of capital and embodied technology in new capital goods, whose acquisition was funded by foreign capital, most probably made the economy more efficient. Conversely, the sudden stops at the turn of the century slowed down growth as the increase in capital accumulation decelerated, and presumably the efficiency of the economy. Thus, sudden stops by causing current account reversals and currency drops in a context of domestic macroeconomic imperfections had a clear negative effect on the long-run growth of Spain.

[73] See Herranz-Loncán's (2006) important contribution on the impact of railways on capital accumulation and TFP growth.

[74] In the simulation, I should have previously adjusted the share of capital in national income resulting from a lower capital stock in the growth accounting exercise, with the subsequent reduction in the growth rate of GDP. However, since I am trying to obtain a lower bound estimate I have not considered this option.

[75] Alternative simulations for 1850-1890 and 1891-1913 cast similar results with counterfactual per capita GDP growth being lower than actual growth in the first period (0.9 versus 1.0 percent) and higher in the second (1.2 versus 1.0).

Concluding remarks

Between 1850 and 1890 economic expansion coincided with a significant current account deficit, while between 1891 and 1913 growth slowed down at a time of positive current account balances. This inverse correlation between current account surplus and economic growth throws serious doubts on the widespread view of an external restriction to Spain's growth during the nineteenth century. It suggests, in fact, an alternative interpretation: the balance of payments reacted to changes in the equilibrium between saving and investment. Thus, the current account deficit resulted from an inflow of capital which allowed the rate of investment to rise and, in turn, to contribute to more rapid growth. Only when isolation from the international economy increased since 1891 investment demand had to rely on domestic saving. In the context of globalization which characterized the classical gold standard era, there was no reason why an open economy should not enjoy sustained access to international capital markets and break the link between investment and domestic saving. From this perspective the persistence of the current account deficit between 1850 and 1890 is better understood.

At the turn of the century, domestic macroeconomic imperfections strengthened the current account reversals that had been provoked by sudden stops, undermining the confidence of foreign investors in the Spanish economy and helping the flight of foreign capital. Furthermore, as Blanca Sánchez-Alonso (2000) has shown, the migration push of the 1891 protectionist tariff was largely offset by the microeconomic consequences of the currency crash preventing individuals from migrating for one and a half decades.

The view that Spanish integration in international markets contributed to a slowing down of economic growth appears to be wrong. It can be suggested that without the current account deficit –that is, without an inflow of foreign capital - Spain would have grown at a slower speed during the second half the nineteenth century. As the inflow of capital dried up, investment had to rely exclusively on domestic savings slowing down capital accumulation and economic growth.

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Table 1

Actual and Counterfactual Growth (%)

	Capital Stock		GDP per head	
	Actual	**Counterfactual**	**Actual**	**Counterfactual**
Simulation 1				
1850-1883	3.6	3.0	1.4	1.3
1850-1866	4.9	2.9	1.1	0.8
1850-1873	3.9	2.5	1.7	1.4
Simulation 2				
1884-1913	2.4	2.7	0.6	0.7
1891-1898	1.9	2.9	0.9	1.1
1906-1913	2.8	3.2	1.8	2.0

Sources: Prados de la Escosura and Rosés (2009, 2010) and see the text.

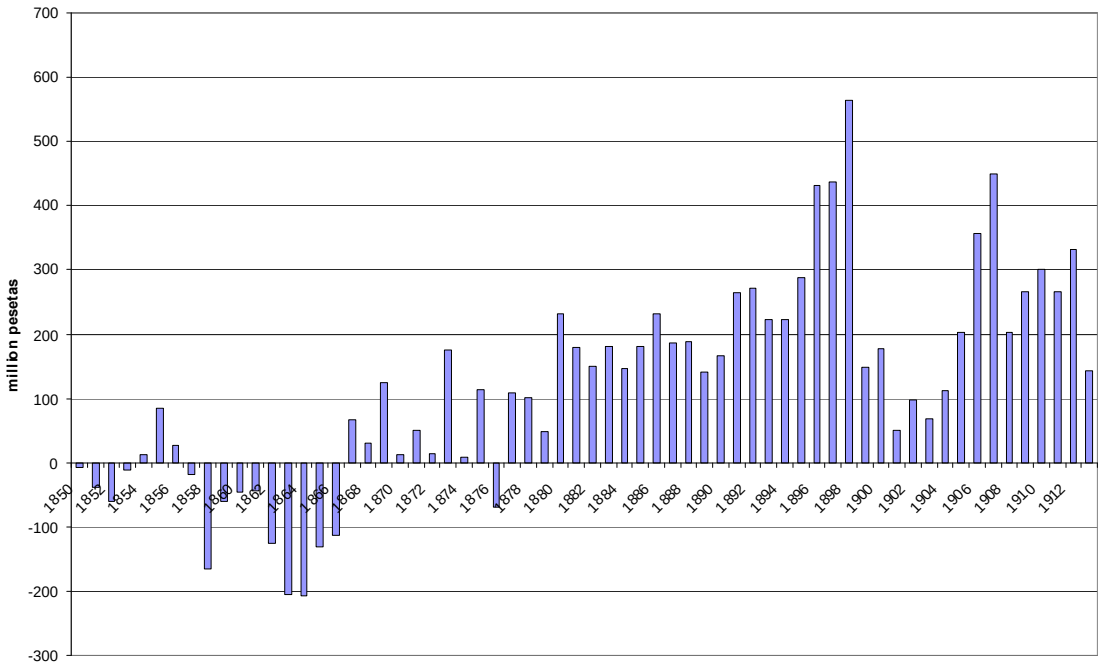

Figure 1: *Commodity Trade Balance (million Pesetas)*
Source: See text.

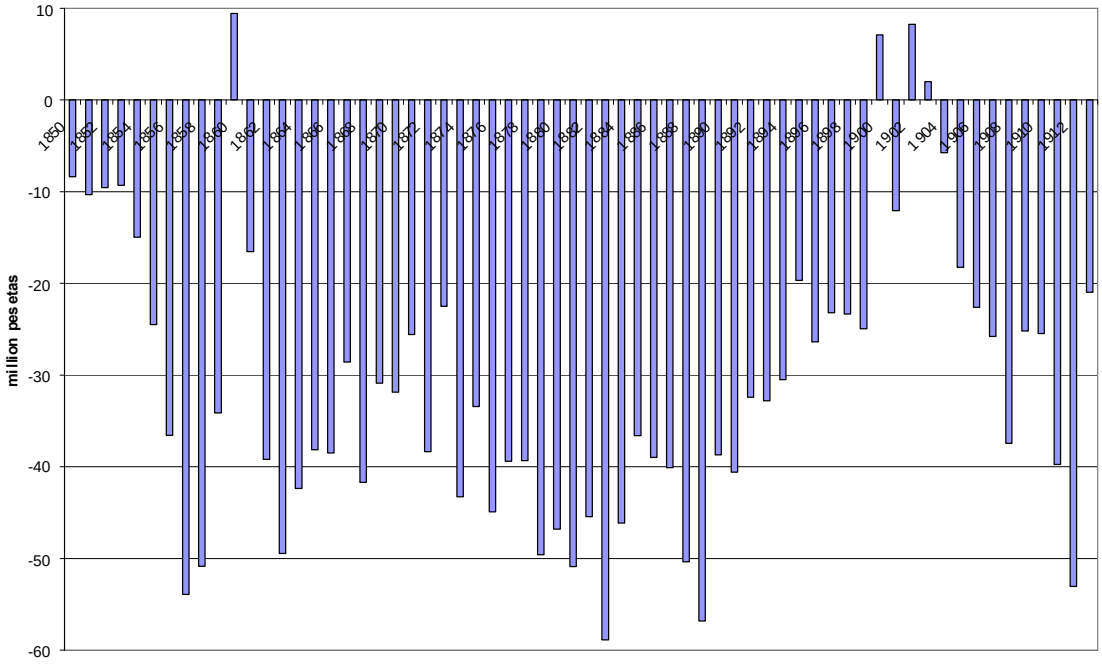

Figure 2: *Services Trade Balance (excluding net income from abroad) (million Pesetas)*
Source: See text.

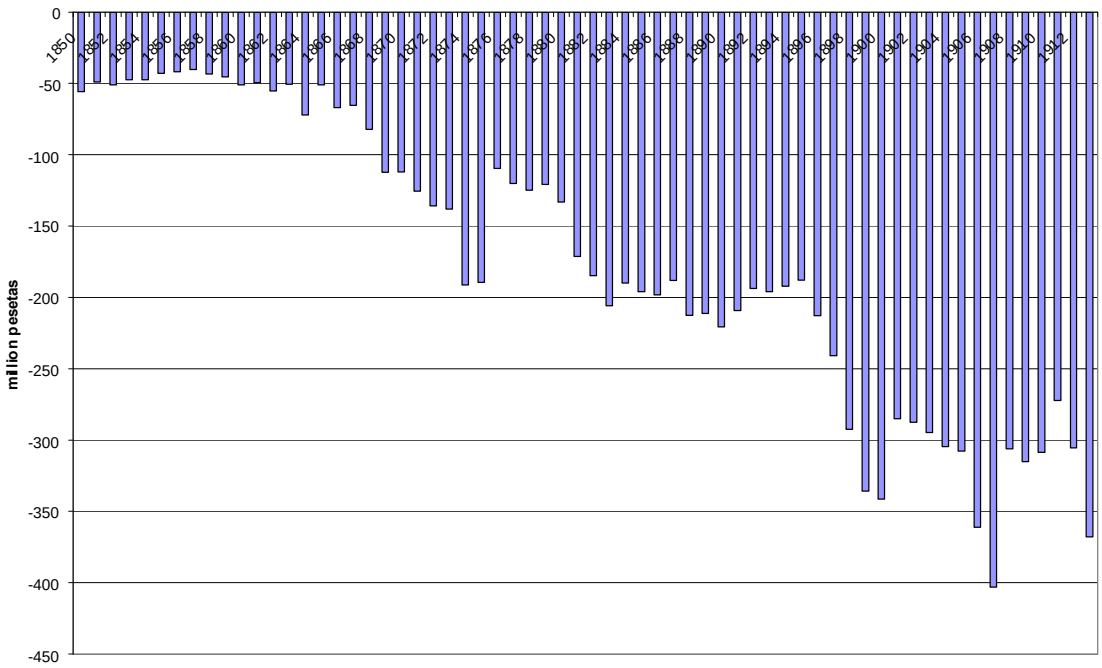

Figure 3: *Services Trade Balance: Net Income from Abroad (million Pesetas)*
Source: See text.

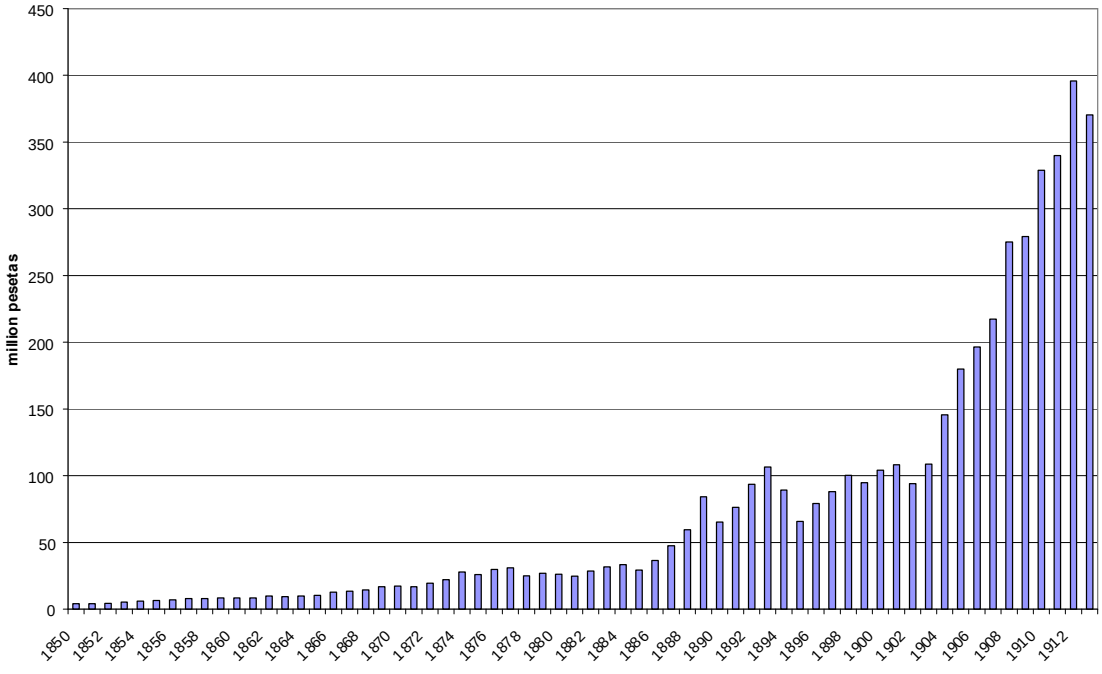

Figure 4: *Current Transfers Balance (million Pesetas)*
Source: See text.

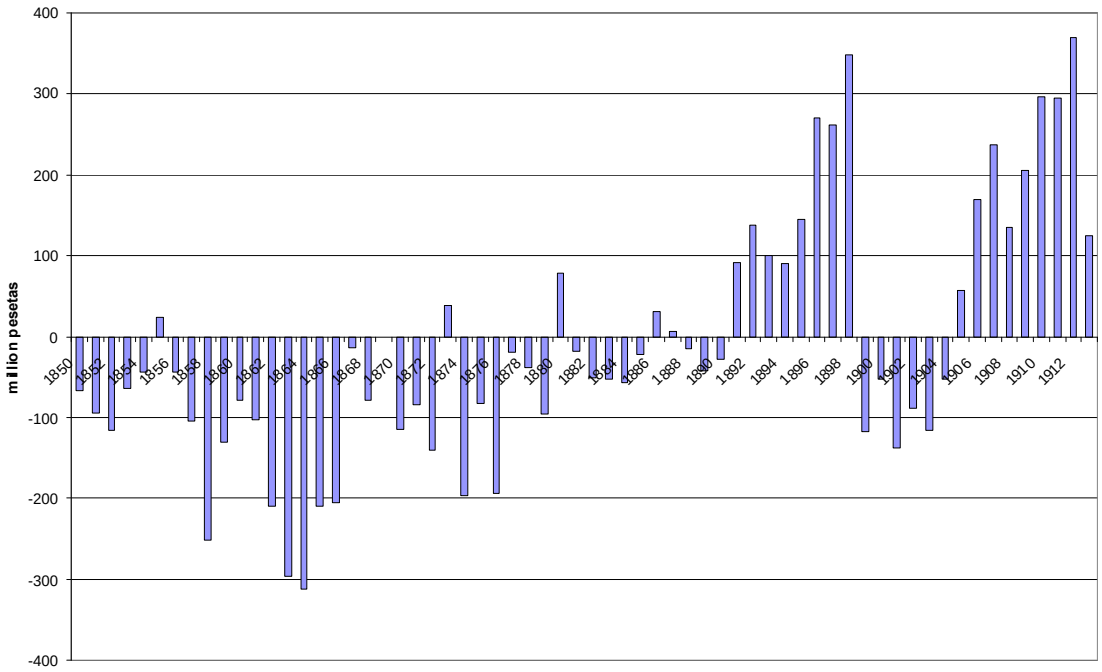

Figure 5: *Current Account Balance (million Pesetas)*
Source: See text.

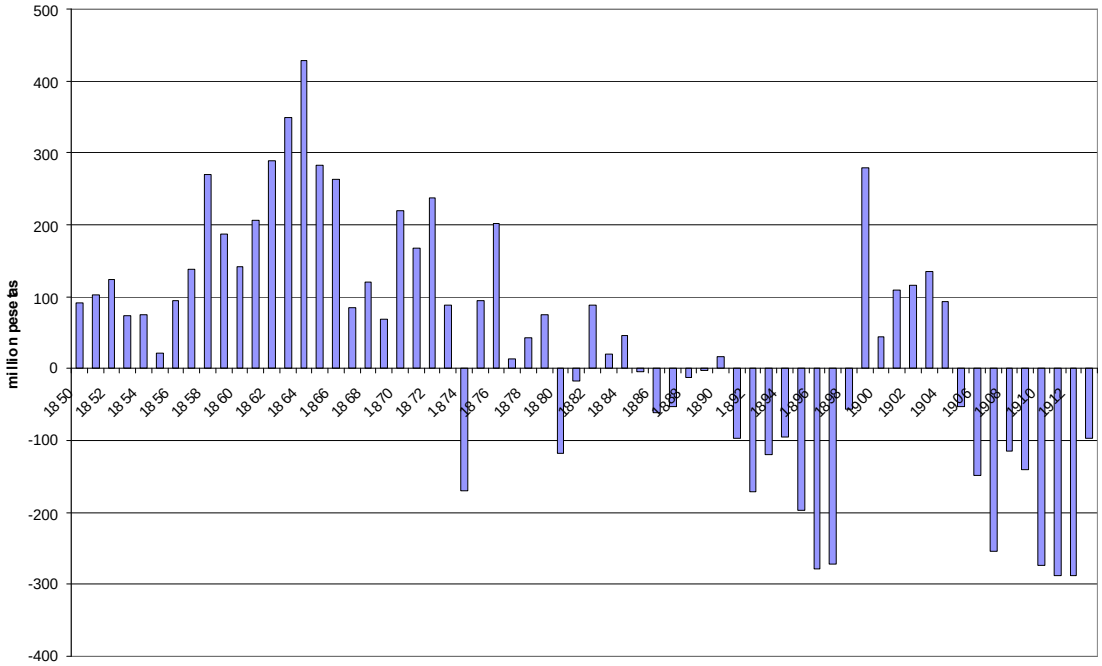

Figure 6: *Net Capital Inflow (million Pesetas)*
Source: See text.

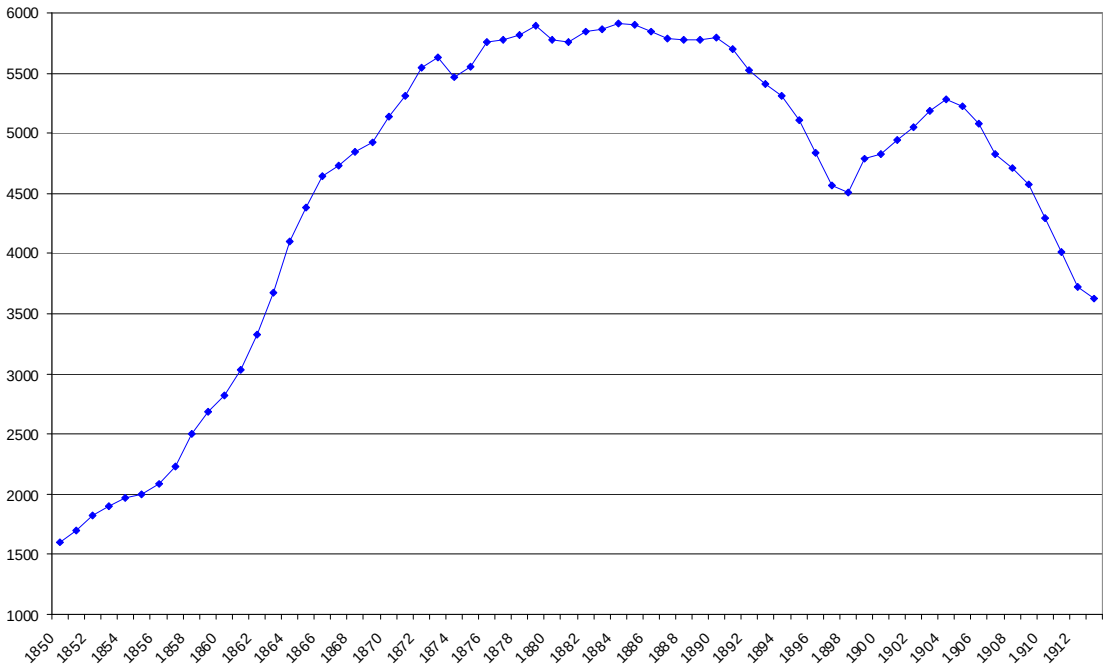

Figure 7: *Spain's International Indebtedness (million Pesetas)*

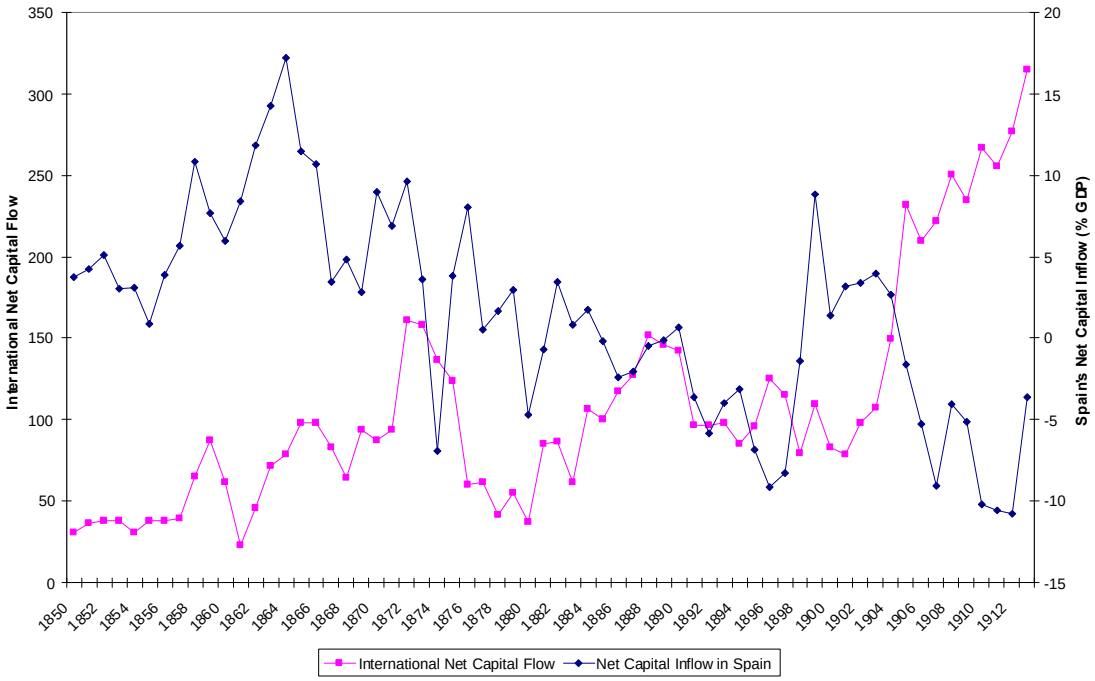

Figure 8: *International Net Capital Flow and Spain's Net Capital Inflow (million Sterling)*
Source: Obstfeld and Jones (1997) and see text for Spain's net capital inflow.

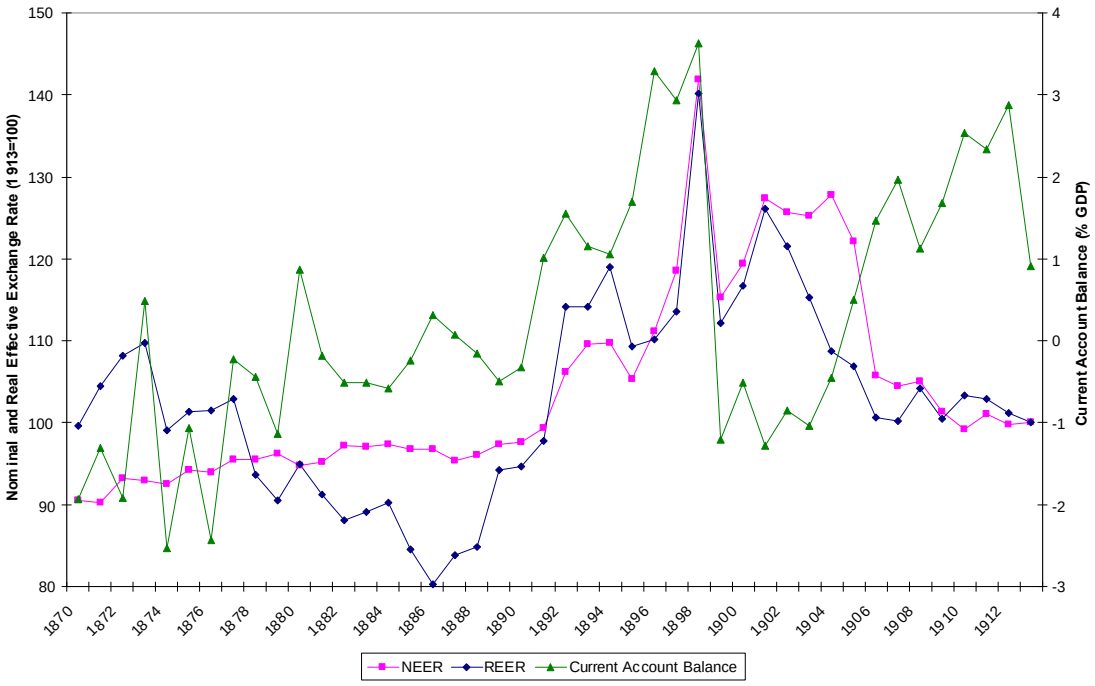

Figure 9: *Spain's Current Account Balance (% GDP) and Nominal and Real Effective Exchange Rate (1913=100), 1870-1913*
Sources: See the text.

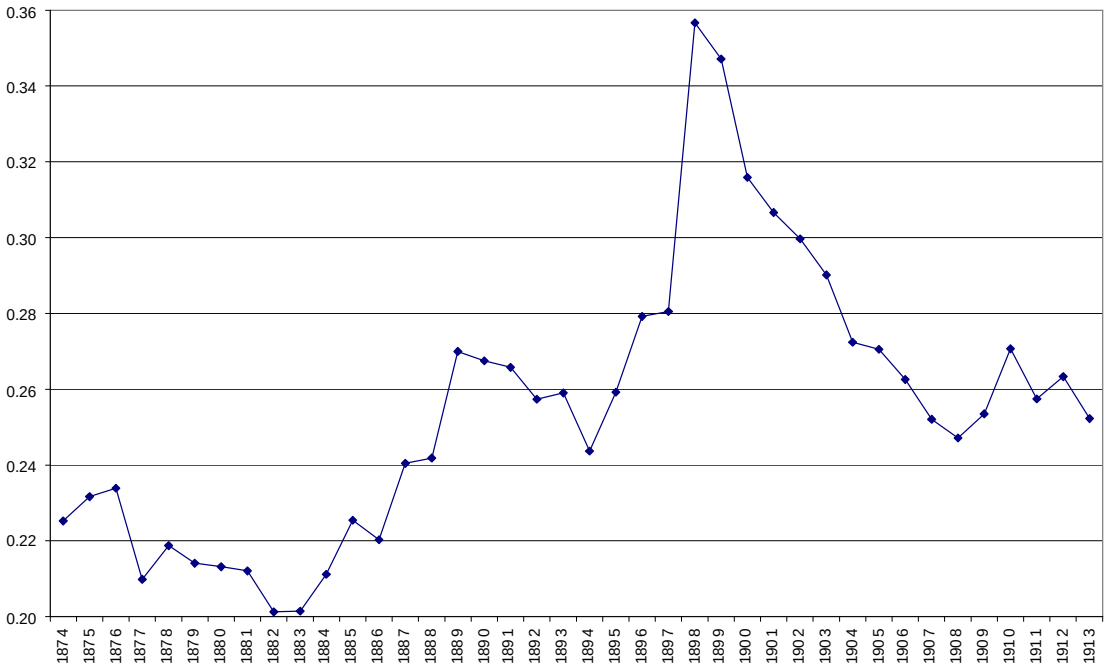

Figure 10: *Ratio M2/GDP (1874-1913)*
Sources: M2, Martín Aceña and Pons (2005); GDP, Prados de la Escosura (2003).

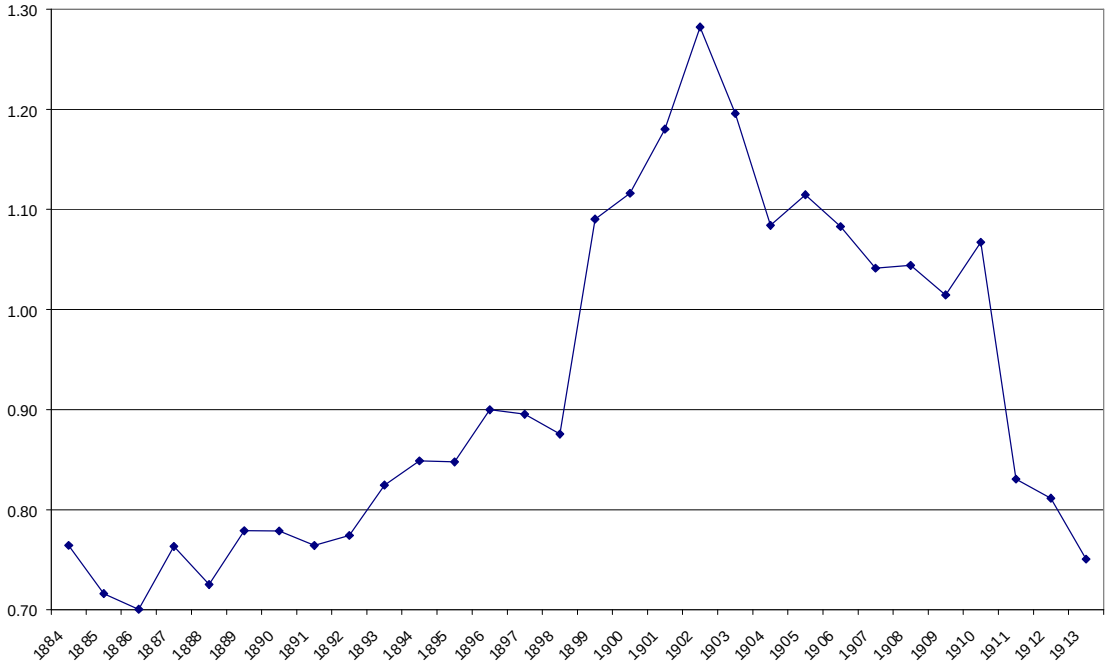

Figure 11: *Public Debt/GDP (1884-1913)*
Sources: Public Debt, Comín and Díaz Fuentes (2005); GDP, Prados de la Escosura (2003).

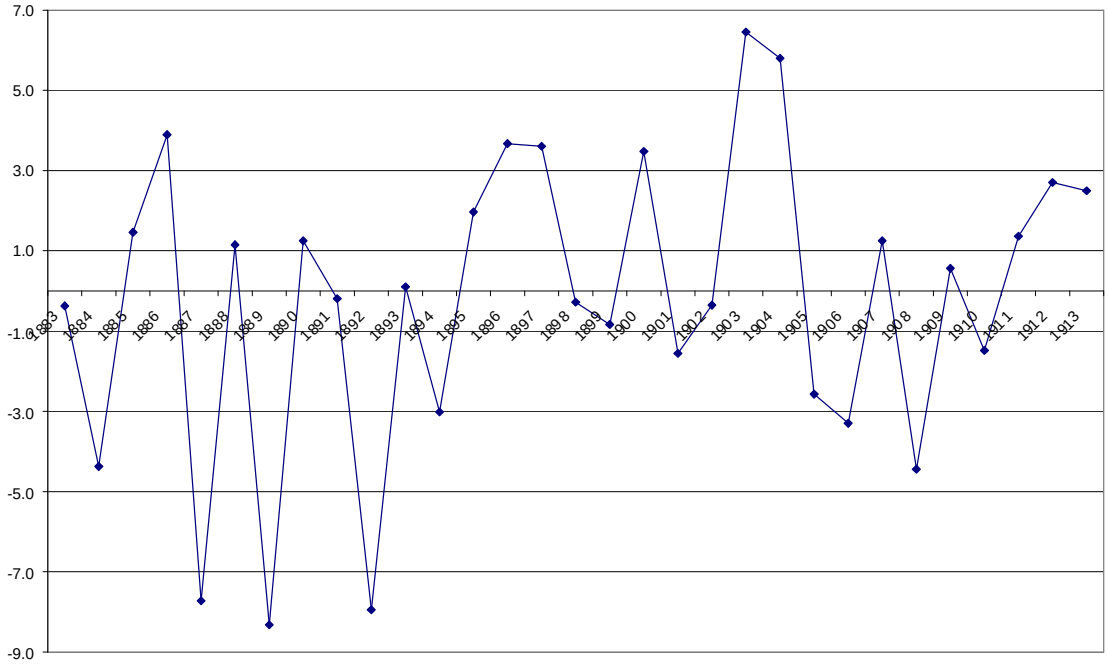

Figure 12: *Rate of Inflation (1883-1913)*
Sources: GDP deflator from Prados de la Escosura (2003).

Figure 13: *Interest Rate Spread in Spain (1884-1913): Differential with England, France, and Germany*
Sources: Central banks discount rates for Spain, Martín Aceña and Pons (2005); for Britain, France, and Germany, Homer and Sylla (1991).

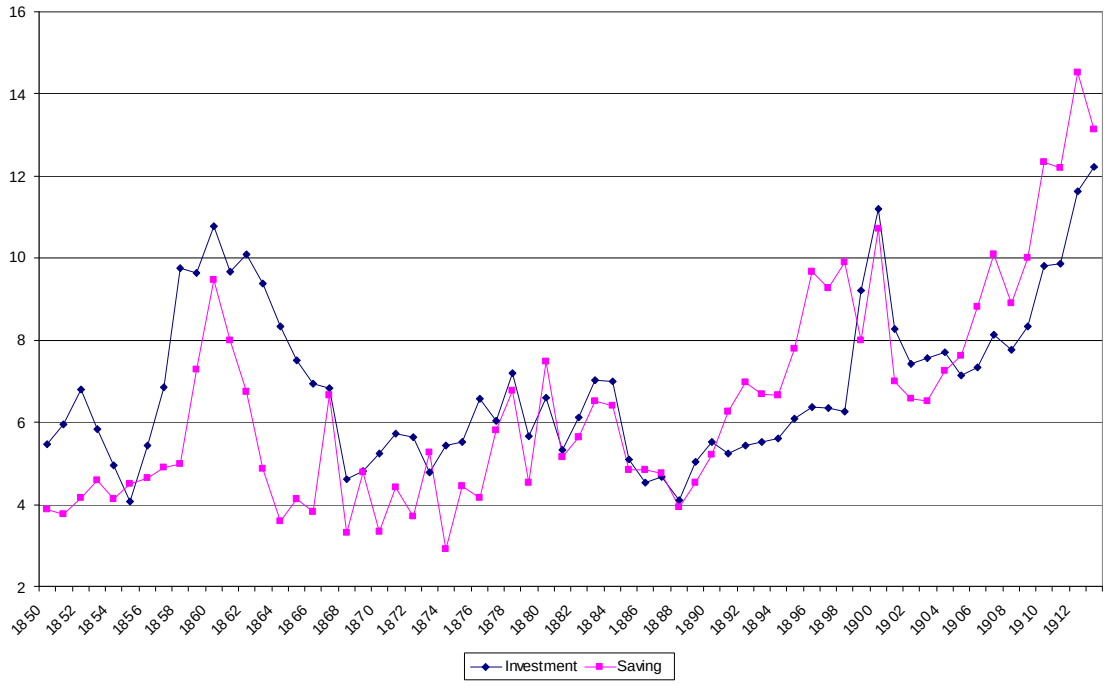

Figure 14: *Gross Investment and Saving (% GDP)*
Sources: Investment, Prados de la Escosura (2003); Saving, see the text.

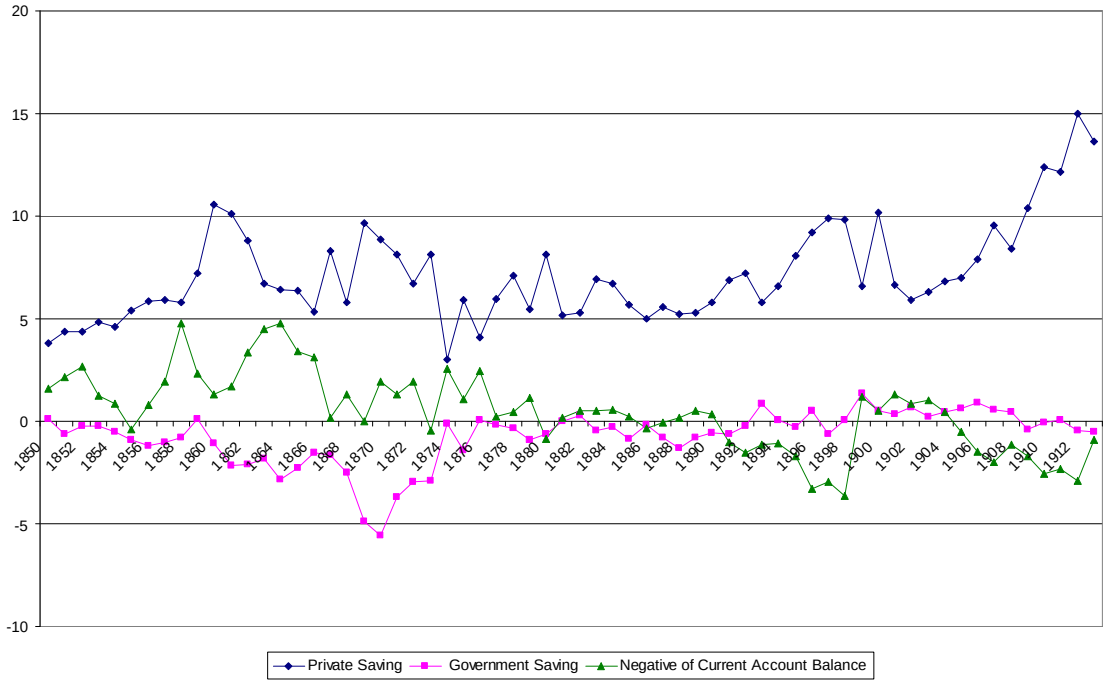

Figure 15: *Decomposing Gross Investment: Private and Government Saving and the (negative of the) Current Account Balance (% GDP)*
Sources: Government Saving, Comín and Díaz Fuentes (2005); for the rest, see the text.

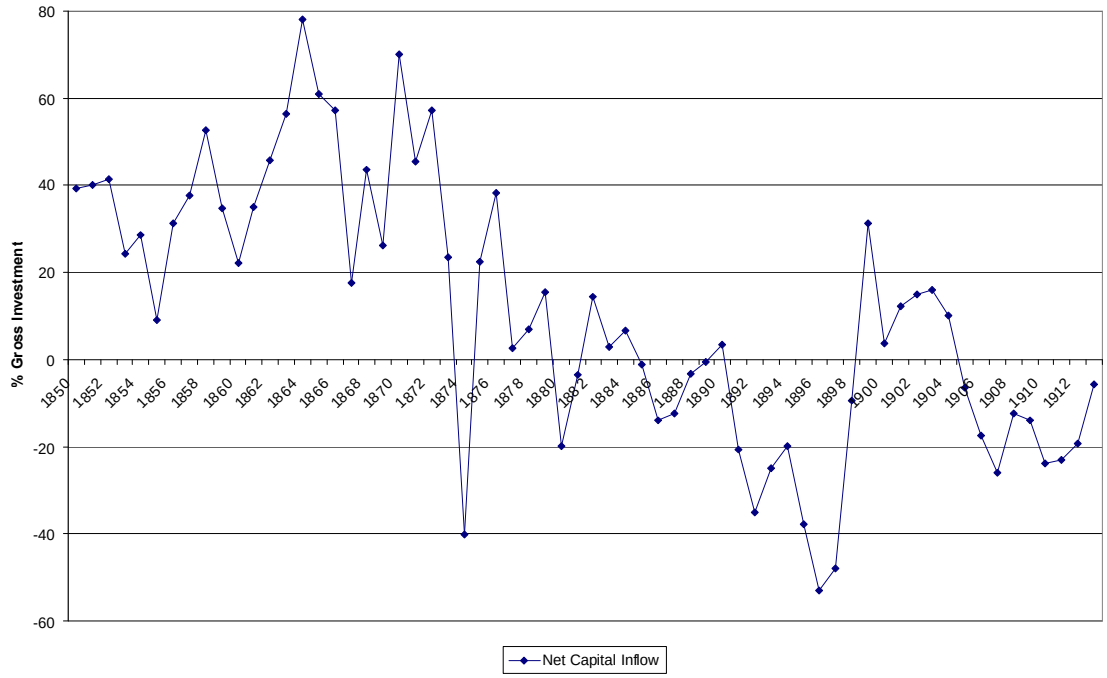

Figure 16: *Net Capital Inflow as a proportion of Gross Investment (%)*
Sources: See the text.

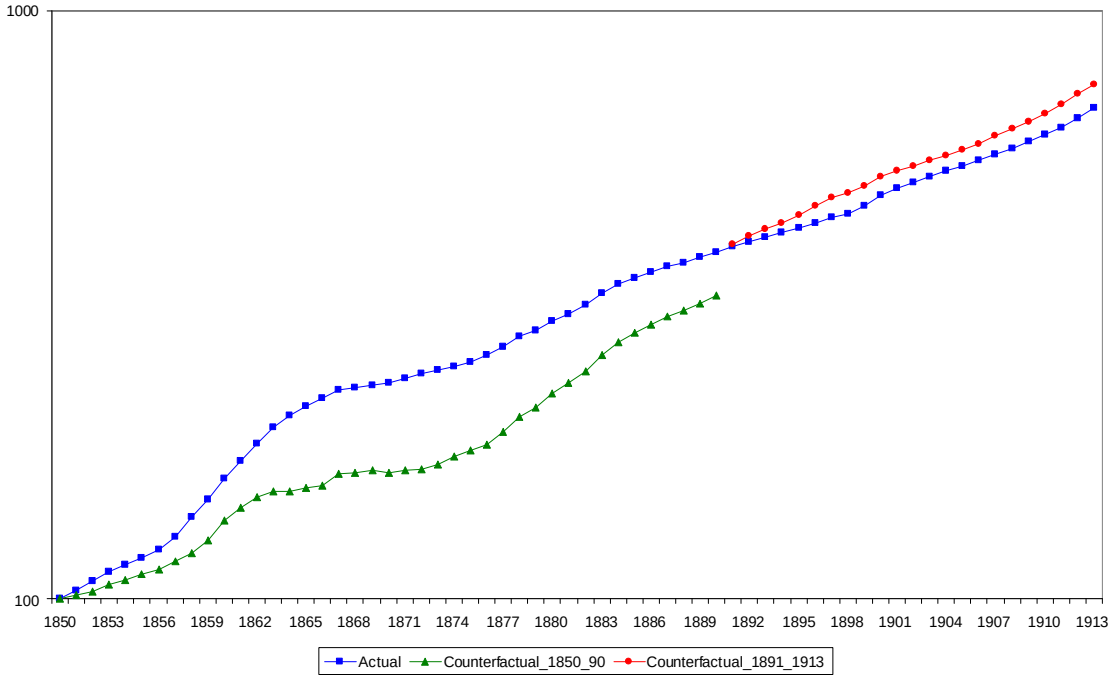

Figure 17: *Actual and Counterfactual Capital Stock, 1850-1913 (1850 = 100)*
Sources: See the text.

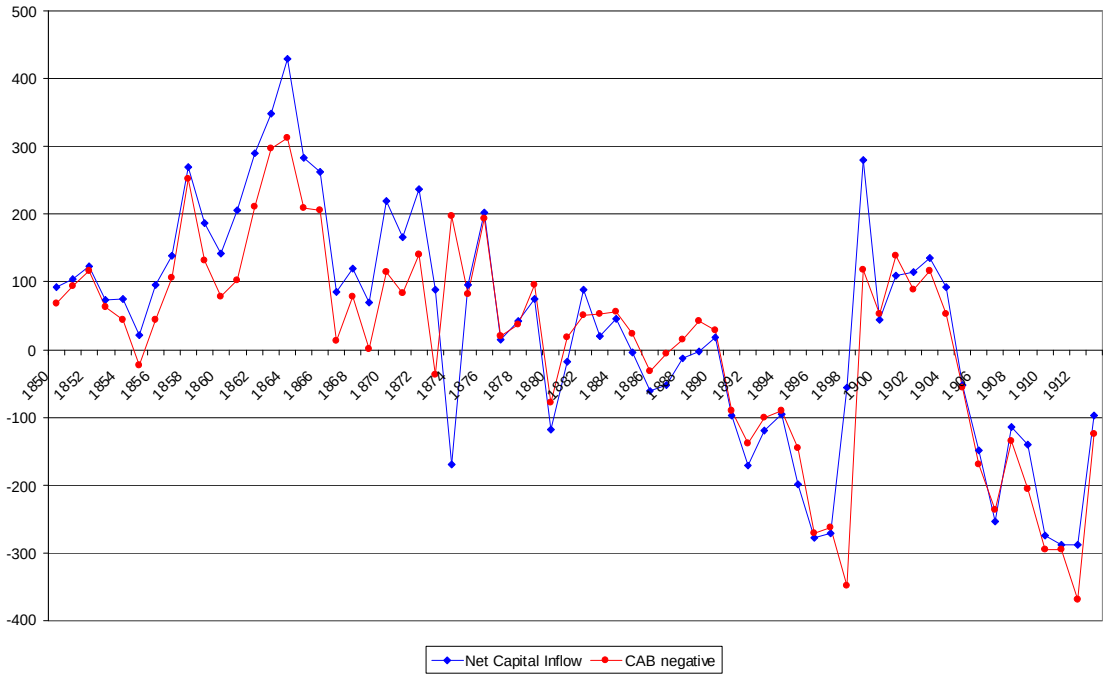

Figure A-1. *Negative of the Current Account Balance and Net Capital Inflow (million Pesetas)*

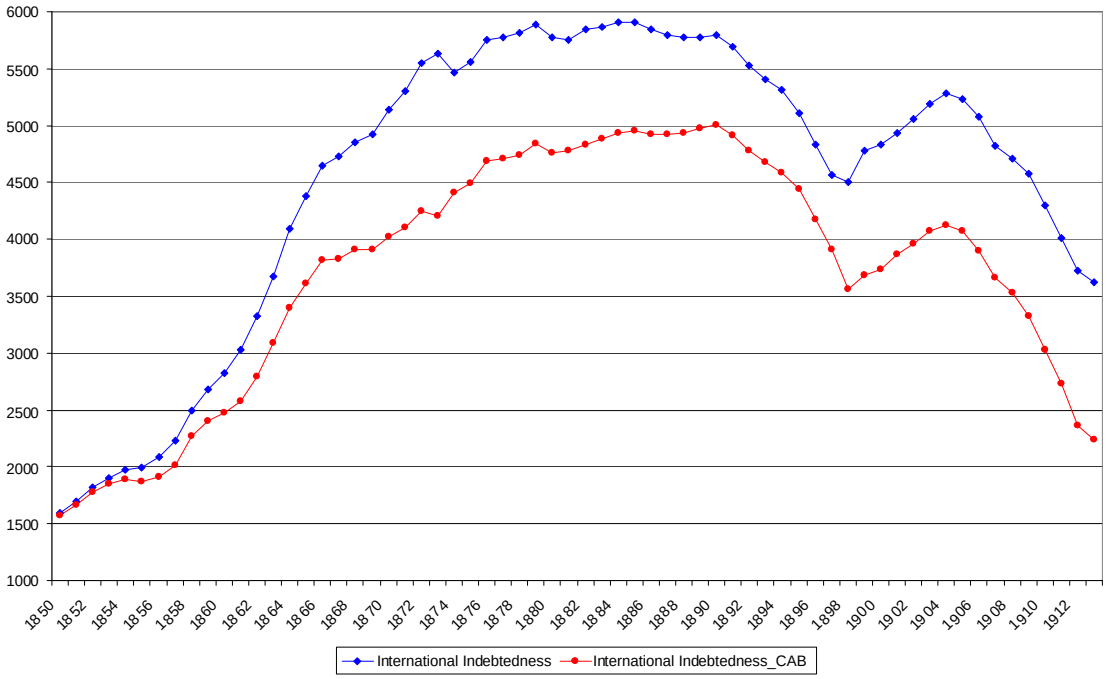

Figure A.2. *Spain's International Indebtedness (million Pesetas)*: *Alternative Estimates*

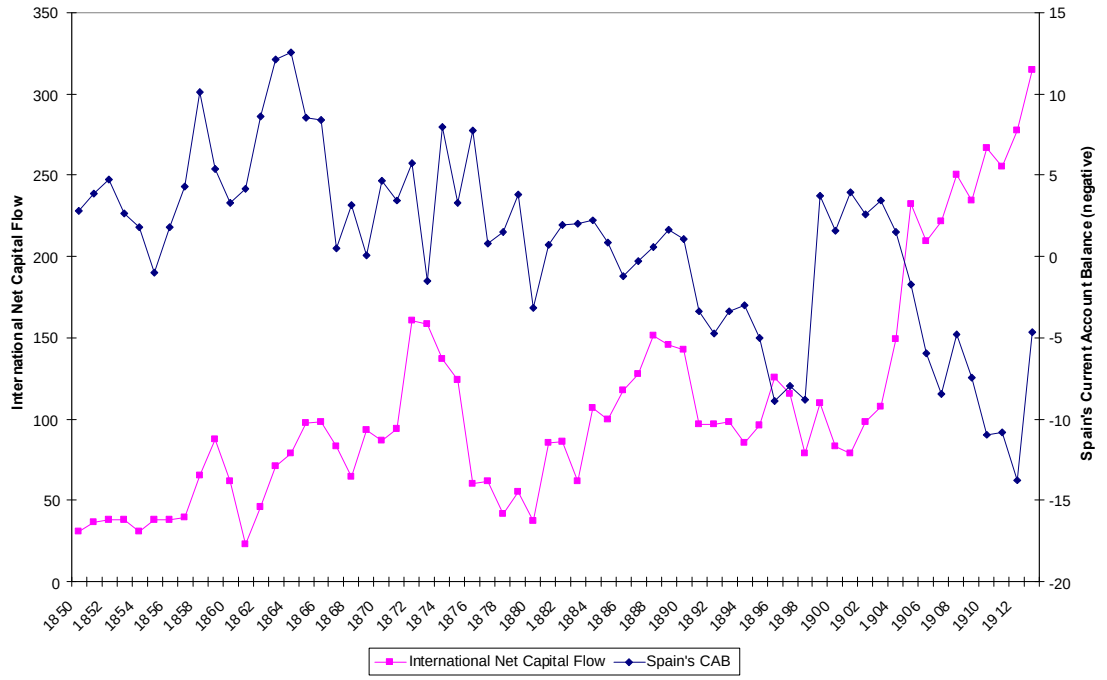

Figure A.3. *International Net Capital Flow and Spain's Current Account (negative) (million Sterling)*

Source: Obstfeld and Jones (1997) and see text for Spain's current account balance.

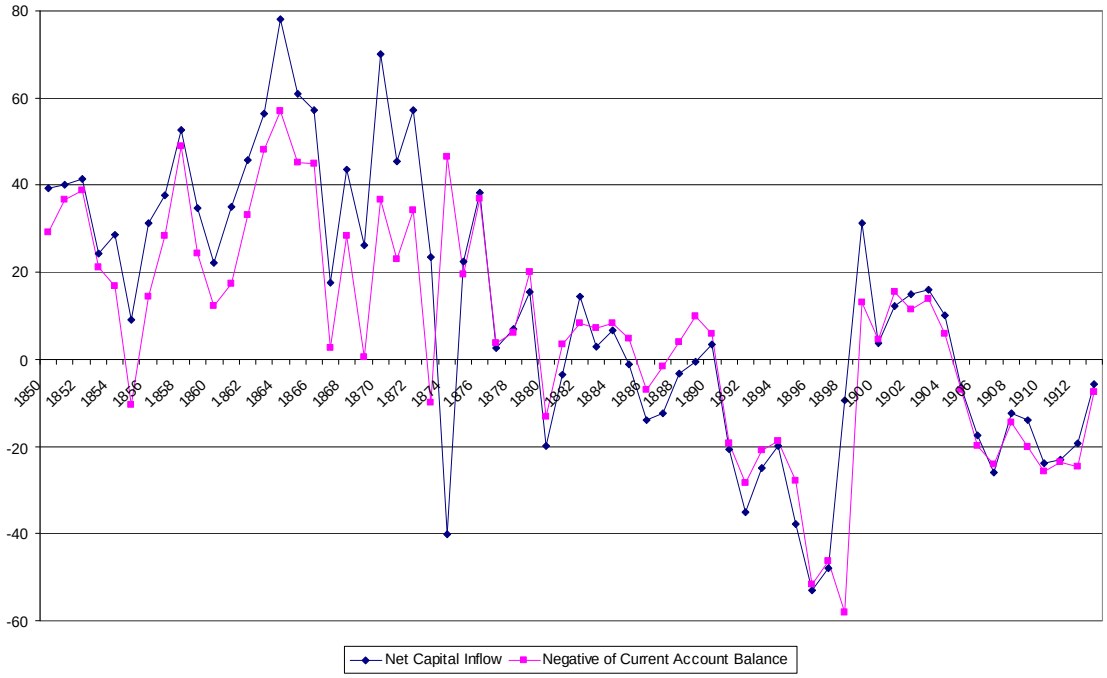

Figure A.4. *The (negative of the) Current Account Balance as a proportion of Gross Investment (%)*
Sources: See the text.

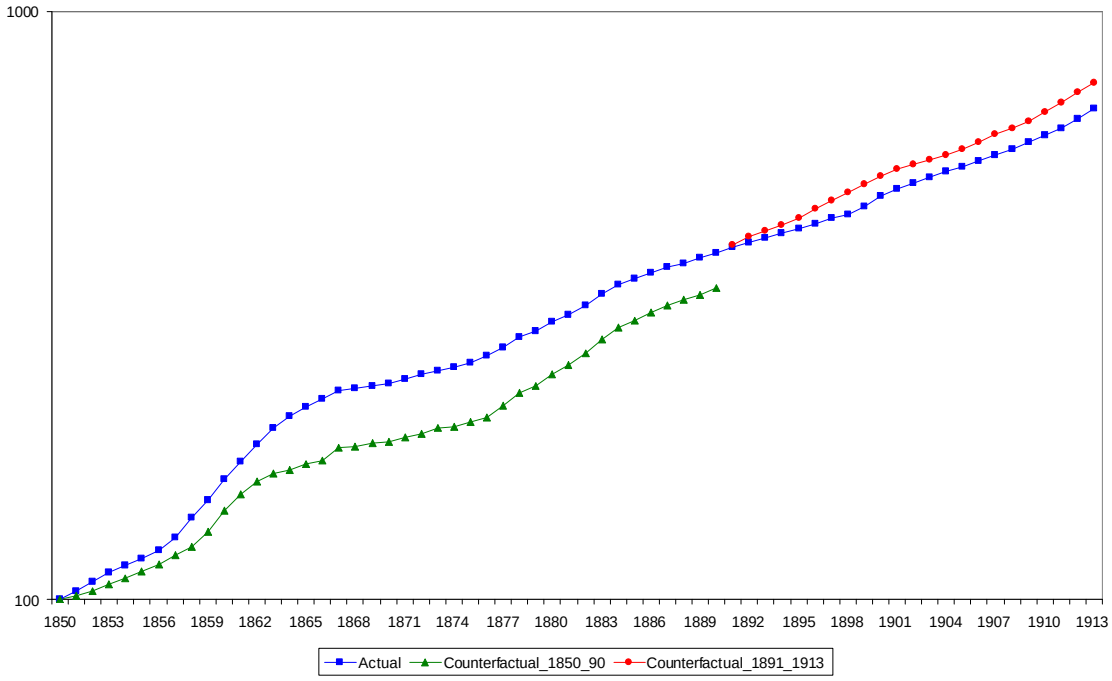

Figure A.5. *Actual and Counterfactual Capital Stock, 1850-1913 (1850 = 100): Alternative Estimate Computed with the Negative of the Current Account Balance.*
Sources: See the text.

Appendix 1

The Balance of Payments on Current Account, Net Capital Inflow, and International Indebtedness, 1850-1913 (Million Pesetas)

	Exports goods fob	Exports services*	Payments to domestic labour	Current Transfers	Imports goods fob	Imports services*	Payments to foreign capital	Commodity Balance	Balance of Services*	Net Income from abroad	Net Current Transfers	Current Account Balance	Variation In Reserves	Net Capital Inflow	International Indebtedness
1850	161.9	8.2	0.2	4.2	169.5	16.6	55.9	-7.6	-8.4	-55.7	4.2	-67.4	24.0	91.4	1596.4
1851	142.8	8.4	0.2	4.2	182.1	18.8	49.2	-39.3	-10.3	-49.0	4.2	-94.5	9.0	103.5	1699.9
1852	134.6	8.8	0.2	4.3	194.1	18.3	51.3	-59.5	-9.5	-51.0	4.3	-115.8	8.0	123.8	1823.7
1853	185.9	12.8	0.3	5.3	198.0	22.1	47.7	-12.1	-9.3	-47.4	5.3	-63.6	10.0	73.6	1897.3
1854	229.5	16.4	0.3	6.1	217.5	31.4	47.8	12.0	-15.0	-47.5	6.1	-44.4	31.0	75.4	1972.6
1855	322.0	16.4	0.3	6.4	237.0	40.9	43.3	85.0	-24.5	-43.0	6.4	24.0	45.0	21.0	1993.7
1856	319.4	20.4	0.4	7.1	291.9	57.0	42.2	27.5	-36.6	-41.8	7.1	-43.9	51.0	94.9	2088.6
1857	318.1	22.5	0.5	8.0	337.0	76.5	40.7	-19.0	-53.9	-40.2	8.0	-105.2	34.0	139.2	2227.7
1858	179.9	18.9	0.5	8.0	345.4	69.8	43.9	-165.5	-50.9	-43.4	8.0	-251.8	18.0	269.8	2497.5
1859	236.9	15.3	0.5	8.4	297.0	49.5	45.8	-60.1	-34.2	-45.3	8.4	-131.1	56.0	187.1	2684.6
1860	262.9	61.7	0.5	8.6	308.5	52.2	51.6	-45.7	9.4	-51.1	8.6	-78.8	63.0	141.8	2826.4
1861	281.0	35.1	0.5	8.6	325.8	51.7	50.1	-44.8	-16.5	-49.6	8.6	-102.4	104.0	206.4	3032.8
1862	235.0	20.0	0.8	9.9	360.9	59.2	55.9	-125.9	-39.2	-55.1	9.9	-210.3	79.0	289.3	3322.1
1863	236.9	21.9	0.7	9.5	443.0	71.3	51.2	-206.1	-49.5	-50.4	9.5	-296.5	52.0	348.5	3670.6
1864	219.9	33.1	0.8	9.8	427.9	75.4	72.8	-208.0	-42.4	-72.1	9.8	-312.7	116.0	428.7	4099.3
1865	250.2	22.4	0.8	10.5	381.5	60.5	51.8	-131.3	-38.1	-51.0	10.5	-210.0	73.0	283.0	4382.2
1866	267.0	21.1	0.9	12.7	380.3	59.6	67.9	-113.4	-38.5	-66.9	12.7	-206.1	57.0	263.1	4645.3
1867	367.4	19.9	1.0	13.4	299.9	48.5	66.4	67.5	-28.6	-65.4	13.4	-13.1	72.0	85.1	4730.5
1868	374.4	23.7	1.0	14.6	343.3	65.4	83.3	31.1	-41.7	-82.3	14.6	-78.3	42.0	120.3	4850.8
1869	429.3	21.9	1.2	16.9	304.5	52.8	113.5	124.8	-30.9	-112.3	16.9	-1.4	68.0	69.4	4920.2
1870	334.2	21.1	1.2	17.3	322.7	53.0	113.2	11.5	-31.9	-112.1	17.3	-115.1	105.0	220.1	5140.3
1871	433.1	32.3	1.1	16.9	382.8	57.9	126.6	50.3	-25.6	-125.5	16.9	-83.9	83.0	166.9	5307.2
1872	493.2	29.8	1.7	19.4	479.5	68.1	137.6	13.7	-38.4	-135.9	19.4	-141.1	96.0	237.1	5544.3
1873	582.5	33.4	2.1	22.1	406.5	55.9	140.1	176.0	-22.5	-138.0	22.1	37.7	126.0	88.3	5632.6
1874	506.7	28.6	2.6	28.0	497.5	71.8	193.9	9.2	-43.3	-191.3	28.0	-197.3	-367.6	-170.3	5462.4

1875	537.9	26.6	2.4	25.9	423.4	60.0	191.9	114.6	-33.4	-189.5	25.9	-82.4	12.6	95.0	5557.4
1876	451.7	28.2	3.4	29.8	521.2	73.1	112.9	-69.5	-44.9	-109.5	29.8	-194.2	7.5	201.7	5759.0
1877	566.4	29.5	3.5	31.0	457.5	68.9	123.7	109.0	-39.4	-120.2	31.0	-19.7	-5.8	13.9	5772.9
1878	534.2	29.6	1.6	25.1	433.1	69.0	126.4	101.1	-39.3	-124.8	25.1	-37.9	4.9	42.8	5815.7
1879	540.7	31.6	2.9	26.9	493.1	81.2	123.8	47.6	-49.6	-120.9	26.9	-96.0	-21.2	74.8	5890.5
1880	734.5	39.5	3.1	26.3	502.9	86.3	136.2	231.6	-46.8	-133.1	26.3	78.0	-39.5	-117.5	5773.0
1881	755.6	42.8	1.7	24.7	575.9	93.7	173.0	179.7	-50.9	-171.3	24.7	-17.8	-35.8	-18.0	5754.9
1882	764.0	47.1	2.9	28.7	613.1	92.6	187.5	150.9	-45.5	-184.6	28.7	-50.5	38.1	88.6	5843.6
1883	831.1	31.7	2.8	31.8	650.2	90.6	208.7	181.0	-58.9	-205.9	31.8	-52.0	-31.5	20.5	5864.1
1884	718.4	32.3	2.7	33.3	572.1	78.5	192.6	146.3	-46.1	-189.9	33.3	-56.4	-10.8	45.6	5909.6
1885	760.0	35.6	3.1	29.3	579.6	72.2	199.2	180.4	-36.6	-196.1	29.3	-23.0	-27.9	-4.9	5904.8
1886	817.9	41.1	4.9	36.6	586.0	80.0	203.1	232.0	-39.0	-198.2	36.6	31.4	-30.2	-61.6	5843.2
1887	753.2	44.1	5.0	47.5	565.9	84.2	193.1	187.2	-40.1	-188.1	47.5	6.5	-46.0	-52.5	5790.7
1888	810.1	49.2	5.4	59.5	621.7	99.6	218.0	188.4	-50.4	-212.7	59.5	-15.2	-27.8	-12.6	5778.0
1889	834.3	57.0	5.9	84.1	693.0	113.8	217.3	141.2	-56.8	-211.3	84.1	-42.8	-45.1	-2.3	5775.8
1890	867.2	53.5	3.5	65.2	701.3	92.2	224.2	166.0	-38.7	-220.8	65.2	-28.3	-11.0	17.3	5793.1
1891	933.7	50.6	4.6	76.3	669.0	91.2	214.0	264.8	-40.6	-209.4	76.3	91.1	-6.1	-97.2	5695.9
1892	931.9	51.7	5.2	93.7	661.1	84.1	198.9	270.8	-32.4	-193.7	93.7	138.4	-32.7	-171.1	5524.9
1893	881.3	52.5	5.3	106.6	658.9	85.3	201.3	222.5	-32.8	-196.0	106.6	100.3	-19.9	-120.2	5404.7
1894	899.0	55.0	7.2	89.2	675.5	85.5	199.3	223.5	-30.5	-192.1	89.2	90.1	-4.9	-95.0	5309.7
1895	861.8	47.8	3.9	65.7	574.3	67.5	191.9	287.4	-19.7	-188.0	65.7	145.4	-52.6	-198.0	5111.7
1896	1067.7	63.0	5.4	79.1	637.1	89.4	218.2	430.6	-26.4	-212.8	79.1	270.5	-7.6	-278.1	4833.6
1897	1127.0	72.4	5.2	88.1	689.4	95.6	246.2	437.6	-23.2	-241.0	88.1	261.5	-9.8	-271.3	4562.3
1898	1272.3	69.2	5.6	100.4	709.2	92.5	298.0	563.2	-23.4	-292.4	100.4	347.8	291.8	-56.0	4506.2
1899	1058.3	89.9	6.4	94.7	910.0	114.9	342.2	148.2	-25.0	-335.8	94.7	-117.9	161.5	279.4	4785.6
1900	1181.1	129.4	6.9	104.2	1003.2	122.3	348.3	177.9	7.1	-341.4	104.2	-52.2	-8.1	44.1	4829.7
1901	1104.5	87.5	6.6	108.2	1053.6	99.6	291.7	50.9	-12.1	-285.1	108.2	-138.2	-28.6	109.6	4939.3
1902	1103.5	97.0	7.4	94.1	1006.7	88.7	295.1	96.7	8.2	-287.7	94.1	-88.5	26.4	114.9	5054.2
1903	1152.0	103.9	8.0	108.7	1084.3	101.9	302.7	67.6	2.0	-294.7	108.7	-116.4	19.1	135.5	5189.7
1904	1202.0	104.7	11.2	145.7	1090.6	110.5	315.8	111.4	-5.8	-304.6	145.7	-53.3	39.0	92.3	5282.0
1905	1318.5	125.1	12.5	180.0	1116.1	143.4	320.1	202.4	-18.2	-307.6	180.0	56.5	3.7	-52.8	5229.2
1906	1323.5	94.7	9.9	196.5	967.0	117.3	371.2	356.5	-22.6	-361.2	196.5	169.2	20.8	-148.4	5080.8
1907	1405.1	86.7	9.3	217.2	956.2	112.5	412.4	448.9	-25.8	-403.1	217.2	237.2	-17.0	-254.2	4826.6

1908	1140.6	77.8	11.8	275.0	937.5	115.3	317.8	203.1	-37.4	-306.0	275.0	134.7	20.3	-114.4	4712.2
1909	1120.8	78.2	9.7	279.2	854.5	103.4	324.9	266.3	-25.2	-315.3	279.2	205.0	64.5	-140.5	4571.7
1910	1237.6	97.7	12.8	328.8	936.8	123.1	321.4	300.8	-25.5	-308.6	328.8	295.5	21.4	-274.1	4297.6
1911	1377.8	104.4	12.7	339.9	1110.6	144.1	285.2	267.1	-39.8	-272.4	339.9	294.8	6.1	-288.7	4008.9
1912	1490.7	129.3	17.2	395.8	1158.5	182.4	322.6	332.2	-53.1	-305.4	395.8	369.5	81.1	-288.4	3720.5
1913	1524.3	135.4	15.9	370.3	1380.6	156.4	383.8	143.7	-21.0	-367.9	370.3	125.1	28.0	-97.1	3623.4

* excluding factor payments
Sources: See text.

Appendix 2.

Investment and Saving, 1850-1913 (Million Pesetas and % GDP)

	(Million Pesetas)						(% GDP)						(% Gross Investment)	
	Gross Investment	Current Account Balance	Gross Saving	Government Saving	Private Saving	Net Capital Inflow	Gross Investment	Current Account Balance	Gross Saving	Government Saving	Private Saving	Net Capital Inflow	Current Account Balance (negative)	Net Capital Inflow
1850	232.3	-67.4	164.8	4.0	160.8	91.4	5.5	-1.6	3.9	0.1	3.8	2.2	29.0	39.4
1851	258.3	-94.5	163.8	-27.0	190.8	103.5	5.9	-2.2	3.8	-0.6	4.4	2.4	36.6	40.1
1852	297.7	-115.8	181.9	-10.0	191.9	123.8	6.8	-2.6	4.2	-0.2	4.4	2.8	38.9	41.6
1853	300.8	-63.6	237.2	-11.0	248.2	73.6	5.8	-1.2	4.6	-0.2	4.8	1.4	21.1	24.5
1854	264.3	-44.4	220.0	-27.0	247.0	75.4	5.0	-0.8	4.1	-0.5	4.6	1.4	16.8	28.5
1855	230.4	24.0	254.4	-52.0	306.4	21.0	4.1	0.4	4.5	-0.9	5.4	0.4	-10.4	9.1
1856	304.3	-43.9	260.4	-66.0	326.4	94.9	5.4	-0.8	4.7	-1.2	5.8	1.7	14.4	31.2
1857	370.1	-105.2	264.9	-54.0	318.9	139.2	6.9	-1.9	4.9	-1.0	5.9	2.6	28.4	37.6
1858	513.2	-251.8	261.4	-42.0	303.4	269.8	9.8	-4.8	5.0	-0.8	5.8	5.1	49.1	52.6
1859	539.9	-131.1	408.8	6.0	402.8	187.1	9.6	-2.3	7.3	0.1	7.2	3.3	24.3	34.7
1860	642.2	-78.8	563.4	-65.0	628.4	141.8	10.8	-1.3	9.5	-1.1	10.5	2.4	12.3	22.1
1861	588.0	-102.4	485.7	-131.0	616.7	206.4	9.7	-1.7	8.0	-2.2	10.1	3.4	17.4	35.1
1862	632.1	-210.3	421.8	-130.0	551.8	289.3	10.1	-3.4	6.7	-2.1	8.8	4.6	33.3	45.8
1863	617.4	-296.5	320.9	-121.0	441.9	348.5	9.4	-4.5	4.9	-1.8	6.7	5.3	48.0	56.4
1864	548.2	-312.7	235.5	-186.0	421.5	428.7	8.3	-4.8	3.6	-2.8	6.4	6.5	57.0	78.2
1865	464.9	-210.0	255.0	-139.0	394.0	283.0	7.5	-3.4	4.1	-2.2	6.4	4.6	45.2	60.9
1866	458.9	-206.1	252.8	-101.0	353.8	263.1	6.9	-3.1	3.8	-1.5	5.3	4.0	44.9	57.3
1867	482.6	-13.1	469.5	-118.0	587.5	85.1	6.8	-0.2	6.6	-1.7	8.3	1.2	2.7	17.6
1868	275.1	-78.3	196.8	-149.0	345.8	120.3	4.6	-1.3	3.3	-2.5	5.8	2.0	28.5	43.7
1869	264.0	-1.4	262.6	-270.0	532.6	69.4	4.8	0.0	4.8	-4.9	9.7	1.3	0.5	26.3
1870	313.4	-115.1	198.3	-331.0	529.3	220.1	5.2	-1.9	3.3	-5.5	8.9	3.7	36.7	70.2
1871	367.1	-83.9	283.2	-238.0	521.2	166.9	5.7	-1.3	4.4	-3.7	8.1	2.6	22.9	45.5
1872	413.4	-141.1	272.3	-219.0	491.3	237.1	5.6	-1.9	3.7	-3.0	6.7	3.2	34.1	57.4

1873	374.3	37.7	411.9	-227.0	638.9	88.3	4.8	0.5	5.3	-2.9	8.2	1.1	-10.1	23.6
1874	423.2	-197.3	225.9	-10.0	235.9	-170.3	5.4	-2.5	2.9	-0.1	3.0	-2.2	46.6	-40.2
1875	424.6	-82.4	342.2	-111.0	453.2	95.0	5.5	-1.1	4.4	-1.4	5.9	1.2	19.4	22.4
1876	526.2	-194.2	332.0	6.0	326.0	201.7	6.6	-2.4	4.1	0.1	4.1	2.5	36.9	38.3
1877	532.0	-19.7	512.3	-13.0	525.3	13.9	6.0	-0.2	5.8	-0.1	6.0	0.2	3.7	2.6
1878	628.4	-37.9	590.5	-30.0	620.5	42.8	7.2	-0.4	6.8	-0.3	7.1	0.5	6.0	6.8
1879	479.9	-96.0	383.9	-78.0	461.9	74.8	5.6	-1.1	4.5	-0.9	5.4	0.9	20.0	15.6
1880	595.2	78.0	673.2	-58.0	731.2	-117.5	6.6	0.9	7.5	-0.6	8.1	-1.3	-13.1	-19.7
1881	503.7	-17.8	486.0	-1.0	487.0	-18.0	5.3	-0.2	5.1	0.0	5.2	-0.2	3.5	-3.6
1882	612.7	-50.5	562.1	31.0	531.1	88.6	6.1	-0.5	5.6	0.3	5.3	0.9	8.2	14.5
1883	712.9	-52.0	660.8	-45.0	705.8	20.5	7.0	-0.5	6.5	-0.4	6.9	0.2	7.3	2.9
1884	682.0	-56.4	625.7	-28.0	653.7	45.6	7.0	-0.6	6.4	-0.3	6.7	0.5	8.3	6.7
1885	490.5	-23.0	467.5	-82.0	549.5	-4.9	5.1	-0.2	4.8	-0.9	5.7	-0.1	4.7	-1.0
1886	444.2	31.4	475.6	-15.0	490.6	-61.6	4.5	0.3	4.8	-0.2	5.0	-0.6	-7.1	-13.9
1887	420.8	6.5	427.3	-73.0	500.3	-52.5	4.7	0.1	4.8	-0.8	5.6	-0.6	-1.5	-12.5
1888	386.0	-15.2	370.8	-122.0	492.8	-12.6	4.1	-0.2	3.9	-1.3	5.2	-0.1	3.9	-3.3
1889	438.4	-42.8	395.6	-67.0	462.6	-2.3	5.0	-0.5	4.5	-0.8	5.3	0.0	9.8	-0.5
1890	488.8	-28.3	460.5	-50.0	510.5	17.3	5.5	-0.3	5.2	-0.6	5.8	0.2	5.8	3.5
1891	472.6	91.1	563.7	-54.0	617.7	-97.2	5.2	1.0	6.3	-0.6	6.9	-1.1	-19.3	-20.6
1892	485.7	138.4	624.1	-19.0	643.1	-171.1	5.4	1.5	7.0	-0.2	7.2	-1.9	-28.5	-35.2
1893	481.3	100.3	581.5	75.0	506.5	-120.2	5.5	1.2	6.7	0.9	5.8	-1.4	-20.8	-25.0
1894	477.9	90.1	567.9	6.0	561.9	-95.0	5.6	1.1	6.7	0.1	6.6	-1.1	-18.8	-19.9
1895	523.9	145.4	669.3	-26.0	695.3	-198.0	6.1	1.7	7.8	-0.3	8.1	-2.3	-27.8	-37.8
1896	524.3	270.5	794.8	40.0	754.8	-278.1	6.4	3.3	9.7	0.5	9.2	-3.4	-51.6	-53.0
1897	564.5	261.5	826.0	-54.0	880.0	-271.3	6.3	2.9	9.3	-0.6	9.9	-3.0	-46.3	-48.1
1898	599.4	347.8	947.2	8.0	939.2	-56.0	6.3	3.6	9.9	0.1	9.8	-0.6	-58.0	-9.3
1899	894.1	-117.9	776.2	134.0	642.2	279.4	9.2	-1.2	8.0	1.4	6.6	2.9	13.2	31.2
1900	1150.2	-52.2	1098.0	52.0	1046.0	44.1	11.2	-0.5	10.7	0.5	10.2	0.4	4.5	3.8
1901	893.5	-138.2	755.3	38.0	717.3	109.6	8.3	-1.3	7.0	0.4	6.7	1.0	15.5	12.3
1902	773.1	-88.5	684.6	71.0	613.6	114.9	7.4	-0.8	6.6	0.7	5.9	1.1	11.5	14.9
1903	844.3	-116.4	728.0	23.0	705.0	135.5	7.6	-1.0	6.5	0.2	6.3	1.2	13.8	16.0
1904	905.9	-53.3	852.6	54.0	798.6	92.3	7.7	-0.5	7.3	0.5	6.8	0.8	5.9	10.2
1905	808.4	56.5	864.9	72.0	792.9	-52.8	7.1	0.5	7.6	0.6	7.0	-0.5	-7.0	-6.5

1906	849.4	169.2	1018.6	103.0	915.6	-148.4	7.3	1.5	8.8	0.9	7.9	-1.3	-19.9	-17.5
1907	978.8	237.2	1216.0	65.0	1151.0	-254.2	8.1	2.0	10.1	0.5	9.6	-2.1	-24.2	-26.0
1908	929.3	134.7	1063.9	56.0	1007.9	-114.4	7.8	1.1	8.9	0.5	8.4	-1.0	-14.5	-12.3
1909	1015.9	205.0	1220.9	-51.0	1271.9	-140.5	8.3	1.7	10.0	-0.4	10.4	-1.2	-20.2	-13.8
1910	1145.1	295.5	1440.7	-6.0	1446.7	-274.1	9.8	2.5	12.3	-0.1	12.4	-2.3	-25.8	-23.9
1911	1245.7	294.8	1540.5	6.0	1534.5	-288.7	9.9	2.3	12.2	0.0	12.2	-2.3	-23.7	-23.2
1912	1493.7	369.5	1863.2	-62.0	1925.2	-288.4	11.6	2.9	14.5	-0.5	15.0	-2.2	-24.7	-19.3
1913	1685.0	125.1	1810.1	-71.0	1881.1	-97.1	12.2	0.9	13.1	-0.5	13.6	-0.7	-7.4	-5.8

Sources: See the text and Appendix 1. GDP and Investment, Prados de la Escosura (2003); Public Saving, Comín and Díaz Fuentes (2005).